

Fall 2015

# SciTech News Volume 69, No. 4

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# SciTech News

The Official Bulletin for the Chemistry, Engineering, and Science-Technology Divisions and the Aerospace Section of the Engineering Division and the Materials Research and Manufacturing Section of the Chemistry Division of the Special Libraries Association



**Volume 69, Number 4 (2015)**  
**ISSN 0036-8059**

# SciTech News



## On the Cover

"Cow Killer — This close up of a Velvet Ant (which isn't really an ant, but a wasp) is feared by many due to the "Cow Killer" name. Even though these wasps don't actually kill cows, the sting is definitely one to be feared because it's very painful! Fortunately these wasps are not aggressive and will most likely try to avoid you, but that doesn't mean you want to handle one or step on it barefoot."

Photo and caption credit: USGS, Bee Inventory and Monitoring Lab. Image public domain at: <https://www.flickr.com/photos/us-geologicalsurvey/21160239054/>

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## Copy Deadline

Issue Number 1 .....	Feb 1
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Issue Number 3 .....	Aug 1
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# SciTech News

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# ANNUAL REVIEWS

Connect With Our Experts

## New from Annual Reviews:

### *Annual Review of Vision Science*

Volume 1 • November 2015 • Online or Print \$255 • [vision.annualreviews.org](http://vision.annualreviews.org)

Co-Editors: **J. Anthony Movshon**, *New York University* and **Brian A. Wandell**, *Stanford University*

The *Annual Review of Vision Science* reviews progress in the visual sciences, a cross-cutting set of disciplines that intersect psychology, neuroscience, computer science, cell biology and genetics, and clinical medicine. The journal covers a broad range of topics and techniques, including optics, retina, central visual processing, visual perception, eye movements, visual development, vision models, computer vision, and the mechanisms of visual disease, dysfunction, and sight restoration. The study of vision is central to progress in many areas of science, and this new journal will explore and expose the connections that link it to biology, behavior, computation, engineering, and medicine.

**Complimentary online access to Volume 1 of the *Annual Review of Vision Science* will be available until November 2016.**

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- *Color and the Cone Mosaic*, David H. Brainard
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- *Ribbon Synapses and Visual Processing in the Retina*, Leon Lagnado, Frank Schmitz
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- *Visuomotor Functions in the Frontal Lobe*, Jeffrey D. Schall
- *What Does Genetics Tell Us About Age-Related Macular Degeneration?* Felix Grassmann, Thomas Ach, Caroline Brandl, Iris M. Heid, Bernhard H.F. Weber
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## From the Editor

Jeremy Cusker

*SciTech News* is hiring! After our next issue (March 2016), I am planning to step down after 4 years of involvement with this publication. My very capable colleague, **Christine Malinowski** will at that point change roles from Assistant Editor to Editor. In keeping with that change, we are seeking a capable, digital-savvy individual to take on the role of Assistant Editor.

This is a position that requires perhaps 10-15 hours of work for each of 4 quarterly issues. Interested individuals should be able to demonstrate an interest in science journalism and the library profession, proficiency with layout software (ideally, Adobe InDesign or equivalent), English language and writing skills, and attention to detail. Fa-

miliarity with DropBox and with collaborative editing also a plus. A small stipend, payable either as cash or in the form of an SLA annual convention registration subsidy, is available.

The Division of Science and Technology is able to cover the annual costs of an Adobe InDesign Creative Cloud license should an interested individual not have access to one. Access to a computer capable of running InDesign is a prerequisite.

Interested individuals should contact us ([cmalinowski@post.harvard.edu](mailto:cmalinowski@post.harvard.edu)) with a letter and portfolio or links to prior relevant design, layout and/or editing work.



### What have you been doing lately?

*SciTech News* wants to know! Please send us information about your awards, promotions, professional publications and presentations or other recognition. We'll publish your activities in *SciTech News*, bringing your news of our members' accomplishments to the wider SLA and library communities.

Send such information to Jeremy Cusker, [jcusker4031@gmail.com](mailto:jcusker4031@gmail.com) by January 1 for publication in the next issue of *SciTech News*.

### Do you have a research project?

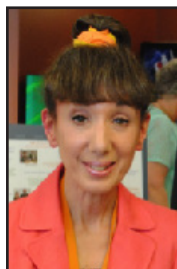
*SciTech News* is interested in publishing refereed research articles on library science topics. If you would like to submit such an article for consideration for publication in *SciTech News*, please contact the editors for details on formatting and creating an anonymized manuscript for referee review.



## News from the Science-Technology Division

### Science-Technology Division Sheila Rosenthal, Chair

The objectives of the Science-Technology Division shall be to draw together those members of the Special Libraries Association having an interest in the role of library and information science as applied to the recording, retrieval and dissemination of knowledge and information in all areas of science and technology, and to promote and improve the communication, dissemination and use of such knowledge for the benefit of libraries and their users.'



Dear SciTech News Subscribers,

This column, which will be my last as Chair of the Science-Technology Division is a reflection of my experiences as Chair and an opportunity to thank the many people, whose names are in bold face type, who have helped me to successfully accomplish my responsibilities. It is hard for me to believe that my term as Chair will come to an end in December 2015. It went by so quickly and I have really enjoyed this position, having learned a great deal about the requirements and responsibilities within the Science-Technology Division as well as within SLA. After attending two consecutive Leadership Summits, the first one being in Memphis, TN and the second in Baltimore, MD I can truly say that I hope SLA will bring this event back sometime in the future. It is extremely valuable for Chair-Elects and their respective conference planners to learn the ropes of conference planning as well as for Chairs to mentor them and reflect upon their past experiences. It is also a great place to network and learn about SLA and to be given the opportunity to consider moving up to higher elected positions within the Association. Since this has been such a time of change for SLA it was especially important to have the January 2015 Leadership Summit as a place to discuss and possibly negotiate some of these changes with members of the SLA Executive Board.

During my 2015 term as Chair I followed the example set by our previous chair and held all of our four Executive/Advisory Board meetings virtually. These meetings occurred on February 10, March 24, May 29 (this meeting was open to all Science-Technology Division Members to replace the in-person meeting we used to have during the Annual Conference) and September 22. Originally I

had hoped to hold these meetings monthly but due to some of my work responsibilities this was not possible. I believe that the new Chair of our Division, William (Bill) Jacobs will be scheduling these meetings once a quarter and he said he may have additional meetings as conference planning becomes hectic because he thought that would work out the best. Having been an active member of the Science-Technology Division since 2005 and attending all of the Annual Conferences through 2015 I am a bit more inclined to prefer having our Annual Board and Business meeting take place during the Annual Conference as opposed to conducting this meeting virtually. When we had previously held our Annual Business Meeting and Awards Breakfast which usually took place at the conference on Monday morning we had much greater attendance from members outside of the board than we do virtually. In fact we had many members from the Asian Chapter in particular who would have found their attendance at the virtual meeting quite challenging given the time differences and possibly with the technology. At the virtual Board and Business meeting that I held on May 29, 2015 and to which all Science-Technology Division members were invited, there were a total of twelve attendees counting me and only four of which were non-board members. While I understand the logic behind having changed this to a virtual meeting in order to have more time for our Division's conference programs, I still wish we could find a way to go back to having these meetings be held during the Annual Conference. It is fine for the quarterly meetings to be held virtually and I believe the technology has improved somewhat but as we all know it is impossible to eliminate all technical glitches.



During my time as Chair there have been so many Division members who have provided excellent support and that I am anxious to thank. I really appreciate being able to have the opportunity to document all of my “thank you” messages in this Sci-Tech News column. The people I will be mentioning in this very lengthy appreciation section of my column have all received Chair Appreciation Awards during our Awards Ceremony at the 2015 Boston Conference. The first person I would like to thank is our Division’s immediate Past Chair, **Nevenka Zdravkovska** for all of the good advice she provided for me during my time as Chair-Elect and for sharing with all of our Division the knowledge she acquired as our former Treasurer and Chair. I followed the examples she put in place for running virtual meetings and for all of her important contributions during our Executive Board Meetings. She also did an excellent job updating our Governing Documents and placed them within our recommended practices rules that must be followed by our Awards Committee. Her Governing Documents May 2015 DST Recommended Practices changes are documented below:

p. 23, under the subheading Appointments paragraph, the following has been added: *The chair and members of the Awards Committee are expected to be impartial in their deliberations. Members should not nominate anyone or themselves. They will recuse themselves if they are related to a person nominated for an award.*

p. 75 and 76, under qualifications, the following two bullets have been added:

- Has not been a recipient of the same Sci-Tech Award in the past.
- Applicant can only apply to one DST award in a given year.

p. 75, for the Kirk Cabeen award, the first paragraph and first bullet have been reworded, indicating that the award is given to a student from an ALA-accredited school.

p. 78 and 79 have been updated with the 2014 Awards recipients.

The next person I would like to honor is **Beth Thomsett-Scott**. You cannot imagine how relieved I was when I took on the role of Chair-Elect and found out that I would have a “Program Planner” to support me in this capacity. Not only is Beth an excellent program planner coming to us from just having served as the Program Planner for the Engineering Division the previous year, she appears to truly enjoy this type of work and handles each situation with poise and self-confidence even when the stress level increases. She works very well with the other divisions and people in general which really adds to the quality of the programs she develops. I keep telling Beth that she is a natural to serve as Chair of our Division and I hope she will agree to take on this role in the near future. In addition to serving as Program Planner, Beth is also the Treasurer of our Division for which her work is outstanding. She provided valuable updates at each of our Board Meetings, supported the three programs that I planned for the 2015 Boston Conference in addition to planning all of the other programs for this conference, created an excellent pocket guide for the 2015 Boston Conference programs that was so useful and convenient for all conference attendees to use and she is also serving as Program Planner for the 2016 SLA Annual Conference. At our September 22 Executive Board meeting, Beth provided the following information on the programs for which she has already received approval to be part of the 2016 Philadelphia Conference:

### **Science and Engineering 101 - Data Curation and Management: The Basics. Sunday 1:30-3:00**

Join James Manasco and Mary Frances Lembo (and a special guest or two) as they present the fun and informative facts on data curation and management. Discover the basics that will guide you into a career related to this topic or join us for a refresher or just plain catch up on what’s going on in this field. Speakers will discuss and raise questions about data curation/management and future developments/practices/policies. (DPER)

### **Hidden Treasures: Mastering Grey Lit-**

### **erature (Monday June 13 10:00 - 11:30)** (AERO co-sponsor)

We know grey literature exists. What we don't know is how to find it effectively or at all. This session will move attendees from pecking at grey literature to mastering it. Find what you need when you need it is the vision behind this session. Attendees will discover best sites to use, how to search the deep web, and how to ferret out the buried grey literature our customers need.

### **Sciences and Engineering Poster Session (Monday June 13 5pm - 7pm)**

Join your colleagues for an entertaining evening discovering the latest in science research. Make new friends, renew acquaintances, chat with others interested in your field, and have a wonderful evening before joining the later parties. A variety of posters will be available covering science, technology, and engineering. Several divisions will be having award ceremonies during this time. We welcome all attendees!

### **Preparing Students for Corporate Research Life (Tuesday June 14th, 11am - 12pm)**

Academic science librarians are key to preparing students to be successful in corporate research positions. A panel of librarians will discuss ways academic librarians in the STEM disciplines can help students be more prepared for corporate life. Panel will include a library school instructor sharing how library schools are working in this regard.

*Possible co-sponsors: Academic, Education, Solo, LMD*

\*Academic librarians have success stories with ideas to help others, corporate librarians express needs and any success stories working with academic librarians

### **Find Your Niche: Preparing for New Areas in Librarianship (Tuesday 7:30-9:30 am)**

In the last few years, librarianship opportunities have moved from the basics (reference, cataloging, and access services) to wide-ranging and fascinating opportunities in areas such as data management, e-science, knowledge management, user expe-

rience, undergraduate focus, faculty focus, competitive intelligence, consulting, and more. Come and hear from a panel of librarians who will share their job functions and give you advice on how to prepare for and move to these newer fields. Panelists will include academic and special librarians, solo librarians, managers, consultants, and possibly a library school instructor or two. This program is aimed for budding librarians and those who are in the field and looking to make a move to a different discipline within librarianship. Speakers will provide insight into their specialty (discipline) and some tips for how attendees can ready themselves to make a successful transition.

We also currently have the Newcomers' Welcome Dinner on Saturday evening from 6:00 pm - 8:00 pm.

Beth has been working with Bill Jacobs whom we are very fortunate to have as our incoming Chair of the Division and they make a great team as you can see from the programs listed above. Bill has already served our Division in a number of capacities which include Public Relations Chair for several years where he created great advertisements for our conference programs as well as other of our Division's events and most recently served as Chair-Elect. In regard to Public Relations, Bill told our Division that currently this committee has relatively little work to do and he suggested that it could be combined with our Communications Committee. Since Heather Lewin is the Chair of the Communications Committee I asked her if she would like to Chair these combined committees, but she declined my offer. We will most likely need to find a new Chair of the Public Relations and Communications Committee since Bill will need to step down as Chair of Public Relations to be able to devote his time to being Division Chair. I was truly grateful to Bill for offering to test Adobe Connect with me by suggesting that we set up a brief rehearsal of how we would use this resource the day before I had to conduct my very first personally run virtual board meeting. This helped a great deal to increase my confidence in the technology.

I sincerely thank Bill for all of his help and encouragement during my term as Chair.

I would next like to thank **Helen Josephine**, our 2015 very well deserved recipient of the Science-Technology Division's Ann Koopman Achievement Award. This Award is the highest annual award presented by the Science-Technology Division and is reserved for those recipients whose professional work is marked by distinction and dedication to scientific and technical librarianship. The purpose of the award is to recognize those Division members who have made outstanding contributions to the Division and/or to the literature of science and technology librarianship in the past 1 to 5 years. Nevenka and I almost simultaneously sent Janet Hughes, the Science-Technology Division's Awards Chair our respective nominations for Helen Josephine to receive this Award. At the Awards Ceremony during the Boston Conference when Helen was about to receive her Award, the ASTM vendor representative who provided financial support for the Award requested to be part of the ceremony so that she could personally present this Award to Helen. Helen has served our Division in so many capacities, including: the Sci-Tech News Advertising Manager; the Vendor Relations committee Chair; Chair-Elect, Chair and Immediate Past Chair from 2012-2014 respectively; Program planner for the San Diego Conference in 2013 and was on the SLA Annual Conference Advisory Committee for the 2014 Vancouver Conference.

On a personal note, Helen has provided a great deal of advice for me whenever I had concerns about positions within our Division that were currently not filled. For example I was concerned that we did not have a Contributed Paper Committee Chair and asked if we needed to have a contributed paper session at the Annual Conference. Helen told me that would be up to the Programmer Planner to decide and that I should not worry about it at this early planning stage. When I expressed concern about our Division not having a Parliamentarian Helen said that our Division was small enough that a Parliamentarian was not required. I would like to close

by mentioning Helen's outstanding work as Chair of our Nominating and Elections Committee. She has already secured candidates for Chair-Elect and Secretary, two of our most important positions that needed to be filled. One of the candidates that Helen is considering for Treasurer is from India and I think it is wonderful that she is trying to work things out so that she may be able to provide him with this valuable opportunity.

My next dedication is to Sue Wainscott, the current Chair of our Strategic Planning Committee and who has accepted the nomination as our Division Chair-Elect for 2016. Sue has truly done a fantastic job as Strategic Planning Committee Chair and is a major contributor to this Committee's most prominent and important deliverable which is the Survey that they have created for the Science-Technology Division members. The members of Sue's Strategic Planning Committee who put the most work into developing this Survey were Bradley Gulliford and Dorothy McGarry. Here is the information on the Survey that was presented at our board meeting on May 29, 2015, by Bradley Gulliford:

The Strategic Planning Committee formed a subcommittee to develop a survey of DST members. Dorothy McGarry and Brad Gulliford studied other surveys as models, sketched out survey objectives, and drafted a survey instrument. The survey will be loaded into SLA's instance of SurveyMonkey, tested on a few people, and then opened and advertised to Division members. Analysis of the results will contribute to an understanding of why people join DST and what they want from the Division. Questions fell into 5 areas:

- Who are you?
- Why did you join?
- Why do you stay?
- What challenges and changes do you face?
- How can we help you?
- 

We have two questions we're still not sure of and about which we would like to ask your opinion:

- How visible do you think you are within



your organization/service population?

- Do you want to see more professional development/tools/services/support for internal marketing?

These questions are not Sci-Tech-related specifically, and we're wondering if they are relevant to the survey. Coming from a corporate background, I think they're recognizable SLA language; Dorothy disagrees. We would very much like to know if our members think these last questions contribute to the strategic planning effort.

A few questions were included about attendance and program ideas for the Annual Conference. The final report on the survey will combine with the visioning session at the 2016 Annual Conference into a revised strategic plan that will go to the DST Executive Board.

Dorothy is to be commended for her experience and judgment in retrieving previous surveys, and choosing and refining questions. I contributed some additional thinking and selection of software.

The survey is now in SLA's Survey Monkey account. We are ready to bring it to the Strategic Planning Committee who will first act as testers, and then release it for response from Science & Technology Division members.

Brad said that he and Dorothy are working on the questions suggested, about if the respondent used to be a member of DST & why they left. He also said that, "One obvious question...[is to] whom this survey will be opened to: all SLA members or just DST members?" Brad asked Sue Wainscott, Chair of the Strategic Planning Committee to remind him and the Committee regarding this Survey's intended recipients.

The Survey described above was initially sent out to all Science-Technology Division members on August 31st, 2015 and was to remain open until the end of September 2015. Survey responses will be useful in updating our Division's Strategic Plan. These responses

have been collected and Sue sent me the section of the survey where members have indicated they would like to serve on certain committees within the Science-Technology Division. I believe that Bradley Gulliford will be devoting an entire column in this same issue of Sci-Tech News, December 2015, concerning this Survey and its preliminary results. Below I have captured the questions that were covered in this Survey so that you all can see how very thorough and comprehensive this Survey was and have an idea of how much thought and effort went into creating it. After reviewing these questions I know you will all look forward to reading Bradley Gulliford's column.

Here are the Science-Technology Division Strategic Plan Member Survey Questions:

Q1, 1a. Which category most accurately describes you?

- A member of both SLA and Science-Technology Division
- A member of SLA but not of Science-Technology Division
- Not a member of SLA

Q2, 1b. Have you ever been a member of SLA?

Q3, 1c. How long have you been a member of SLA?

Q4, 1d. If you are also a member of the Science-Technology Division, how long have you been a member of the Science-Technology Division?

Q5, 1e. Do you belong to other SLA Divisions besides the Science-Technology Division?

Q6, 1f. If you have ever dropped your membership in Science-Technology Division (even if you have rejoined it), what was your reason for leaving?

Q7, 2. Please check the appropriate response(s) regarding your membership in other professional societies (e.g., ACRL, ASEE, ALA, ASIS&T)

Q8, 3a. How many years have you worked in the library/information science profession?

Q9, 3b. What is your current work status?

Q10, 3c. Please indicate your degrees in Library/Information Science

Q11, 3d. Please indicate your subject degrees

Q12, 3e. In what type of library do you work?

Q13, 3f. What are your subject specializations?

Q14, 3g. What is your current job title?

Q15, 3h. What are your primary duties?

Q16, 3i. Does your employer encourage you to become involved in professional associations?

Q17, 3j. Does your employer subsidize or reimburse association dues?

Q18, 4a. Do you belong to Science-Technology Division because of:

- The community of practice with fellow science and technology librarians?
- Maintaining current knowledge of science and technology fields?
- Your specialization in science or technology content?
- Your work with science or technology content in an organization involved with other content areas (e.g. Industrial Corporation; comprehensive university)
- I am not currently a member of the Science-Technology Division
- Other, please specify

Q19, 4b. How did you originally hear about Science-Technology Division?

Q20, 4c. Do you consider Science-Technology Division Your Primary SLA Division?

Q21, 4d. If not, what do you consider your primary SLA Division?

Q22, 5a. What are the biggest challenges facing you in your work?

Q23, 5b. How visible do you think you are within your organization/service population?

Q24, 5c. Do you want to see more professional development/tools/services/support for internal marketing?

Q25, 5d. How can Science-Technology Division support you in meeting these challenges?

Q26, 6a. Are you or have you been on a Science Committee or on a committee in your local chapter, division and/or caucus?

Q27, 6b. Would you be interested in serving on a Committee in Science-Technology Division?

Q28, 6c. If yes, please indicate committee

Q29, 6d. Would you be interested in serving Science-Technology Division in a particular support role?

Q30, 6e. Have you ever served as an officer for a chapter, division or caucus?

Q31, 6f. If yes, please indicate which chapter, division or caucus

Q32, 6g. Would you be willing to serve as an officer in Science-Technology Division?

Q33, 6h. If you would like to serve the Science-Technology Division in some capacity, please provide your name and contact information below or contact Sue Wainscott [sue.wainscott@univ.edu](mailto:sue.wainscott@univ.edu) to express your interest

Q34, 7a. Are you planning to retire within the next 5 years?

Q35, 7b. If you are near retirement, do you plan to continue with Science-Technology Division when you retire?

Q36, 8a. What would you suggest as topics for future programs? (Conference and

between conferences? Certification programs)?

Q37, 8b. Do you feel you get good value from SLA conference costs?

Q38, 8c. Do you feel you get good value from SLA membership costs?

Q39, 8d. If you don't attend in-person meetings, do the discussion list, web and newsletter provide adequate community and contacts for you? If no, how could they be improved?

Q40, 8e. What do you want to tell us that we haven't asked about? All comments are welcome.

I also want to sincerely thank Sue Wainscott for all of the assistance she provided for me during the 2015 Annual SLA Conference in Boston. She attended all three of my programs, passed out survey forms and collected them at the conclusion of each program, helped me tally attendance results, and provided so much support and encouragement during all of the events. Sue attended the Newcomer's Dinner we had on Saturday June 13th and the Awards Reception on the following Sunday evening during which I was delighted to present her with the Chair Appreciation Award.

Some of **Anna Ren's** main duties during 2015 have been serving as Chair of the Membership Committee, which included planning the very successful Newcomer's Dinner in Boston, keeping statistical records on the number of members in our Division and recording the names of the new members we have acquired during 2015. She has also served as Secretary and provided accurate and detailed minutes for our Executive and Advisory Board virtual meetings. During 2015 Anna had decided she would like to step down as Membership Committee Chair, but before officially stepping down she found a replacement for herself, Bernice Koh, who comes highly recommended and is anxious to assume this position. Anna has decided to assume the role of e-Discussion Listserv

Manager and she has offered to continue on in her role as Secretary for 2016 so this will be a consideration when it is time for us to vote on incoming and/or continuing Division Officers. It was a pleasure for me to work with Anna on the Newcomer's Dinner and I greatly appreciated her assistance as Secretary of our Division.

I truly enjoyed the Award Ceremony and Reception at the 2015 Boston Conference and this was mainly due to **Janet Hughes** and the great work she has done as our Division's Awards Chair. She did an outstanding job of announcing all four of our awards listed below and she has a wonderful ability to make excellent choices and determine the most deserving Award Recipients:

- Science-Technology and Engineering Division Bonnie Hilditch International Librarian Award
- Diane K. Foster Award
- Science-Technology Division Ann Koopman Achievement Award
- S. Kirk Cabeen Travel Stipend Award

Janet has also addressed some issues and concerns that she recently identified as possible conflicts of interest among award committee members. She told our Executive Board she needs to change some of the awards committee procedures because some committee members nominate and write recommendation letters for those whom they will be evaluating. The Executive Board agreed with Janet that Awards Committee members should not nominate anyone for the awards. There was another instance when a former award winner nominated themselves for the same award that they had won the previous year. It was also decided that no one should be nominated for an award they had previously won, with the exception of the Ann Koopman Achievement Award because if the award nominee is worthy of this for any subsequent years, there should be no restriction, limitation or discouragement for honoring their achievements. Janet dealt with these issues very diplomatically while assuring that awards procedures were followed in a fair and justifiable manner. Janet's care-



ful and conscientious examination of these procedures resulted in Nevenka's including statements about them and official changes within the Governing Documents May 2015 DST Recommended Practices that were previously mentioned in this column as part of my dedication to Nevenka.

**Jeremy Cusker** has been an excellent editor for Sci-Tech News and I have always appreciated his patience with me in regard to the time frame for which I have been submitting my quarterly columns for Sci-Tech News. They are usually last minute submissions (which includes this one) sent on the very last day they are due. Jeremy sends plenty of reminder messages and the only problem I have responding on time comes from interruptions that I receive at work every day and especially when I am trying to complete this column. Today for example I have been contacted repeatedly by our Institute's Chief Operating Officer for information he needs ASAP. I remember that Jeremy kindly volunteered to take the minutes for the very first virtual board meeting I conducted as Chair which I so greatly appreciated. He also took the photos during our Awards Presentation and Reception at the 2015 Boston Conference. All of Jeremy's issues of Sci-Tech News have been developed very professionally and displayed in truly engaging formats. Jeremy has made excellent suggestions for ways to improve the management of the Sci-Tech News budget regarding important areas of investment concentrations. Here is a direct quote from Jeremy taken from the minutes of one of our Executive Board Meetings: "[We should] subsidize an InDesign license for some future editor or assistant editor who doesn't have access to it the way we do. One small additional expense we might need to consider is a Dropbox Pro license (~\$100 per year) for additional storage space; Christine and I use that to assemble content prior to each issue and we are starting to run out of space".

Jeremy reported at our September 2015 Executive Board meeting that after four years he would like to step down as editor of Sci-Tech News and he believes that Christine Ma-

linowski will take over for him. He also asked Helen Josephine, Christine and I about how best to advertise the need for a new assistant editor. Helen wrote the job description and Christine and Jeremy will adjust it. Jeremy said he will continue for one or two more issues. I know that I speak for everyone on the Executive and Advisory Boards when I say that we will miss Jeremy as editor of the Sci-Tech News and hope that he will remain in our Division and consider taking on other Science-Technology Division leadership positions.

**Roger Beckman** has been exceptionally generous in continuing to assume his role as our Division Archivist even though he has retired from his position at Indiana University Life Sciences Library. He had let his SLA membership lapse since his retirement but SLA would not allow him to assume our archivist position unless he was a member, so he rejoined SLA and the Science-Technology Division. During my term as Chair he reported the following at our March 2015 Board Meeting: "The new head of the library space (the Indiana University Life Sciences Library) where the file cabinet that houses the archives is located has given me permission to continue to house it in that space for the foreseeable future. It is probably a good idea to find a replacement archivist within the next year because a number of other branch libraries on campus have been closed or are set to close at the end of the semester. One never knows when space might be needed for other university uses. Now that I have retired I have a bit more time to get to Sci-Tech Division Archives things I put off while I was working. I have been trying to sort through some "overflow" material to decide what should be kept and what recycled. After I complete that I will work on updating the inventory that is on the Sci-Tech website.

I had made a Chair Appreciation Award for Roger and wanted to present it to him at our Awards Ceremony and Reception at the 2015 Boston Conference but Roger was not able to attend. I will be sure to thank him via email and hope we might meet again in person sometime in the near future.

Well since this column is getting quite long, I believe it is time for me to close and I would like to do so by listing the following current positions that are open within our Division:

- Archivist – must also have space at their work location to be able to store the print materials from our Archive
- Assistant Editor of Sci-Tech News
- Communications and Public Relations Committee Chair
- Strategic Planning Committee Chair
- Student Relations Committee Chair

If anyone is interested in applying for any of these positions please do not hesitate to contact me:

Sheila Rosenthal [slr@sei.cmu.edu](mailto:slr@sei.cmu.edu)

Phone: (412) 268-7846

There are so many others I need to thank who have helped me during my term as Chair of the Science-Technology Division. I could not possibly thank them all in this one column, but would really need an entire issue of Sci-Tech News to be devoted to their praise.

I have greatly enjoyed my position as Chair of the Science-Technology Division and encourage others who might be interested in taking on this role in the future to please consider applying. It is a great opportunity to network and develop long lasting relationships with a wonderful group of people.

Thank you all so much for having given me this opportunity.

Sincerely,  
Sheila Rosenthal

### **Science-Technology Division New Members**

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**The Science-Technology Division welcomes its new members:**

Nurhazman Abdul Aziz  
Singapore

Kristin DeAnfrasio  
Valencia, CA  
USA

Projes Roy  
Delhi  
India

Thumy Webb  
Honolulu, HI  
USA

## Preliminary Results from SciTech Survey

by Bradley Gulliford, Greg Krewski, Dorothy McGarry and Sue Wainscott

The Science-Technology Division's Strategic Planning Committee is in the midst of a periodic update to the division's strategic plan, which is prescribed every five years (or more frequently as needed). In September, the committee provided a survey to discover more about both division members and non-members, and how Sci-Tech could be more relevant to them. The 41 question survey, administered via SurveyMonkey.com, was advertised via this newsletter in September, announcements to the Sci-Tech listserve (which includes many non-members), and direct emails to Sci-Tech members with valid email addresses in the membership directory.

120 division members and 37 non-members responded to the survey. This is an approximately 20% response rate of Sci-Tech members, using as our population the 578 Sci-Tech Division members listed in the online member directory. Of these 157 respondents, 14 were not members of SLA, although 8 respondents reported that they had been members in the past. Of these 157, 128 responded to a question regarding number of years they have been SLA members (Figure 1). 28% have been members for 1-5 years, and another 4% have been members less than a year. Another 13% had been members for 6-10 years, 29% had been members for 11-20 years, and 27% for over 20 years. A similar question about years in Sci-Tech shows a similar pattern, with 106 respondents reporting that 33% have been members for 1-5 years, and 5% for less than a year (Figure 2). Of the remainder, 18% had been Sci-Tech members for 6-10 years, 20% for 11-20 years, and 25% more than 20 years. We also asked about which other division memberships our respondents maintained, and while 29 (out of 128 total respondents) were not members of another division, we found considerable overlap with the following divisions: Academic, Physics-Astronomy-Mathematics, Chemistry and En-

### Years of SLA Membership

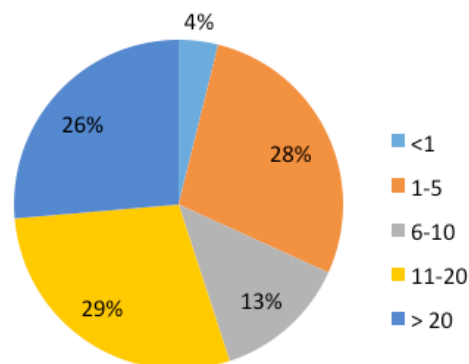


Figure 1. Percentage of 129 responses in each category of SLA Division membership duration.

gineering.

Respondents also held memberships in several other professional organizations, with 140 persons responding. No other professional society membership was maintained by 27% of respondents. 36% were also members of the American Library Association, 24% of Association of College and Research Libraries, 14% of Association for Information Science and Technology (ASIS&T), 8% of the American Chemical Society, and 6% of the American Society for Engineering Education. Many other professional societies were named, including both library and information science and subject professions.

The survey also revealed that about half of respondents are currently employed in an academic library, with many corporate and government professionals, as well as several respondents working in law firms and not-for-profit organizations. Of those responding to questions about employer support for professional society membership and engagement, 83% of employers encourage involvement, but only 41% of respondents' employers assist with dues payment in whole or in part. Of those 28 respondents who reported that they have ever allowed their Sci-Tech Division membership to lapse, 64% stated it was



### Years of Sci-Tech Membership

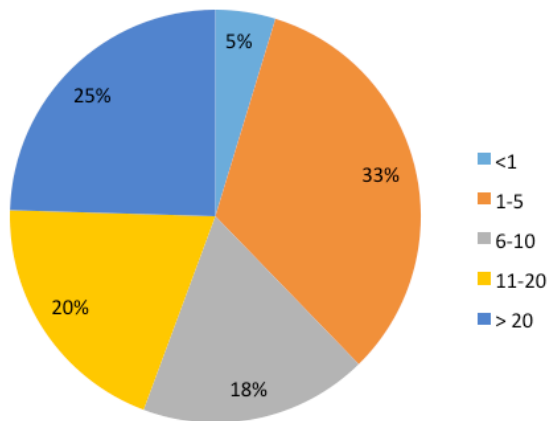


Figure 2. Percentage of 106 responses in each category of Sci-Tech Division membership duration.

primarily due to insufficient funds. 10 of the survey respondents indicated that they were retired, and another 32 were considering retirement in the next 5 years. Of 153 respondents to answer a question about whether they might continue with SciTech after retirement, approximately 56% said they were not sure, and 10% were certain that they would remain active.

Many respondents expressed interest in serving on a committee (33), as an officer (22), or in one of several support roles (21), and those names have been given to Helen Josephine and our current Division Chair, Sheila Rosenthal, for follow up – thank you all! We received many suggestions for additional professional development and conference programs, and these ideas have been passed onto the appropriate committees as well. Respondents were split fairly evenly regarding the value they receive from the annual conferences - among 111 respondents, 34% felt they received good value, 31% did not, and 35% were not sure. Many respondents provided detailed comments regarding the value of the annual conference, and these comments will be highlighted in the report to the division board.

A subgroup of the committee (Bradley Gul-

lifford, Greg Krewski, and Dorothy McGarry) has begun a deeper analysis of the survey data from Sci-Tech division members, examining how responses to certain questions varied among categories defined by length of division membership. The categories for this analysis are: 0-5, 6-10, 11-20, and 20+ years with division. Of those who responded to the question What are the biggest challenges facing you today in your work?, those in the 0-5 and 6-10 years categories had the most varied array of challenges, with the top being relevance, budget/non-human resources, and time to learn. Those in the 11-20 years category overwhelming responded that budget/non-human resources was the top challenge, while those with more than 20 years with Sci-Tech were concerned about budget/ non-human resources, time to learn, and other challenges unique to their job. Survey questions regarding visibility of the respondent within their organization and internal marketing support from Sci-Tech yielded interesting results. Of the 6 newer members of Sci Tech, in the 0-5 category, who identified as very visible in their organization, all were interested in more support from Sci-Tech for internal marketing. However, the 0-5 category respondents who identified as visible or somewhat visible were not sure or not interested in additional internal marketing support. Also of note, responses to a question regarding the ad-

### Years in Information Profession

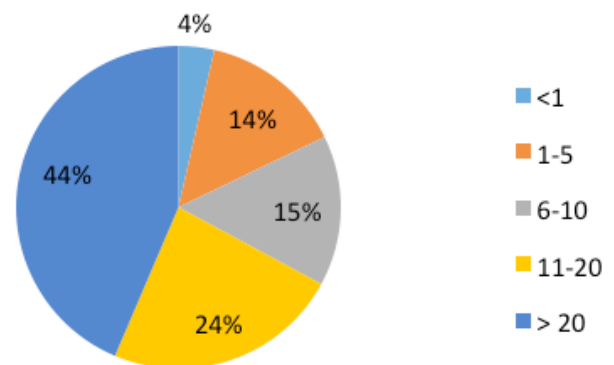


Figure 3. Of 140 respondents, percentage reporting number of years in information profession.

equacy of non-conference communications (listserve, website, newsletter), respondents with 0-5 years in SciTech reported less satisfaction than did other respondents. This may suggest that once personal relationships have formed through conference attendance and other shared experiences, the relationships can be maintained through these asynchronous venues, but are not likely to be formed solely through those venues.

The committee continues to analyze the data and will prepare a report for the division board this winter. This report will include a summary of the programming ideas for future conference and professional development programming, as well as other ideas recommended by or prompted by survey responses. The report will also include the committee's recommendations on content

for the visioning session at annual to more fully inform our recommended strategic plan revision, due to the division board in late 2016. We will also archive a blank copy of the survey, advertisements sent, and the responses.

Next steps for you, dear reader, may include any of the following. 1) Deepen your involvement in this process by emailing additional ideas to the committee chair, Sue Wainscott, or any of the division officers. 2) If you have not already volunteered to serve on a division committee or other roles in the division, contact members of our nominating committee, such as Helen Josephine. 3) Participate in one of the Sci-Tech Division board meetings. 4) Stay tuned for more details in January about a visioning session during the Philadelphia PA annual conference.

## News from the Chemistry Division

### Chemistry Division

### Ye Li, Chair

The Chemistry Division is concerned with chemistry and chemical technology, and the economics, educational advances, and information handling of developments in the field of chemistry and related subjects.



Greetings, dear colleagues! Serving DCHE as the Chair 2015 has been such an exciting and rewarding journey. I'd like to express my gratitude to all DCHE members and other chemical information professionals who contributed to our unique community. Your expertise, passion, and continuous effort have made this past year another success for our division. We enjoyed learning, sharing and networking during our annual conference. We shared our ideas, opinions and resources on our listervs. We connected with our sister organization, ACS-CINF, through hosting our traditional bi-society symposium. Some new members found their mentors through the division.

This year has also been a year of reflection for SLA as a whole and for our division. We responded thoughtfully to the SLA Board of Directors regarding the Recommendation Report and the future of the association. We carried out our membership survey and started the strategic planning process to build up to a better future of the division. We explored new ways of fund raising through working with the SLA HQ as well as partnering with publishers and vendors directly.

In this era of data and information, our profession challenges us to do more with less resource. As information professionals, we are expected to extend our services to the full research and production life cycle and collaborate with broader and more interdisciplinary research, learning and innovation communities. In the coming years, our collective expertise rooted in the deep understanding of chemical information will continue to be

the unique strength of our division. Our challenge is to strategically build up this strength and partner with other divisions in SLA to create more learning and networking opportunities for our members in chemical information areas from broader perspectives. Our membership survey result summarized in this issue of the SciTech News has pointed out some of these directions.

The conference programing for 2016 is heading to these directions through collaborating with other divisions like Engineering and Sci-Tech divisions closely to offer sessions about data and research management. Our Chair-elect Luti Salisbury and Secretary Linda Galloway are working diligently to shape the Philadelphia program nicely. The collaboration with other divisions is also happening for our CE courses. Our Professional Development Committee led by Ted Baldwin is working with Engineering Division to provide a CE course on Electronic Lab Notebook in addition to our regular courses on Chemical Information and the day-long workshop on Chemistry for non-chemist librarians.

In 2016, I will continue to serve as the Past-Chair and lead the Nomination Committee. I'd like to encourage all of our members to consider volunteering for the Division Advisory Board and Committees. Your engagement is the key to keep our division vibrant and creative. I really appreciate your continuous support and your trust in me during the past year. Let's work together towards a better future of our division.

## DCE Executive Board 2016

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Chair	Luti Salisbury	lsalisbu@uark.edu	479-575-8418
Chair-Elect	Dawn French	dawn.french@cristal.com	410-762-1117
Past-Chair	Ye Li	liye@umich.edu	734-615-5694
Treasurer (2015-2016)	Mindy Peters	mpeters@cartech.com	610-208-2807
Secretary (2016-2017)	Linda Galloway	galloway@syr.edu	315-450-1027

## Membership Survey Report

*by Dawn French, Membership Chair 2015 and Ye Li, Chair 2015*

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The Chemistry Division has collected members' opinions and input on the current status and future of the division through our membership survey between June 15 – August 1, 2015. We had 81 people out of the 170+ members who took the survey. A summary of the survey data is in the Appendix of this report. Those responding to the survey were mostly academic and corporate members ranging from students to retirees. Keep in mind a high number of service years does not mean that one is near retirement. A lot of responders have multiple responsibilities in their job and/or multiple subject matters they are responsible for, including some non-science subjects. Many people also reported increasing number of responsible subjects in the past few years.

The results show a desire to keep the MRM section and to make it a more active section. The CHIMNF-L and DCHE Email listserv are the most desired forms of communication. LinkedIn appears to be the slightly preferred social media for communication although all social medias were rated as less desired means comparing to the traditional email listserv, websites and newsletters.

There needs to be more advertising of the Division and the MRM section membership benefits as newer members may not be aware of them. There is a request for more virtual interaction with the Division such as training opportunities and webinars. Division webinars and conference programs with practical content are the most popular requests

for delivering professional development activities with research and data management skills and patents being the most popular topic requests. Interests in learning software and tools for data analysis, data visualization, and collaboration are also prominent. Many members also mentioned the needs in guidance of time management as well as management of professional and career development. Nevertheless, our members are still expecting high quality learning opportunities for Chemistry-focused and specialized databases and resources. The training request comments could also be shared with partnering vendors for possible collaboration opportunities.

There needs to be more communication across the sectors (academic, corporate, etc.) The sectors have shared interests in chemistry but also have differences that are both threats and strengths. The Division also needs to help members learn to justify purchases of paid content/databases and to justify the expenses of professional development.

When it comes to changes in the past several years, many responders reported the pressure of shrinking resources, funds and support staff on top of increasing areas of responsibilities and growing size of user groups. Members are challenged by demonstrating their values to the organization, engaging in-depth with broader learning, research and production community, and staying relevant when discovery of information



appears to be less of the concern. To tackle these challenges, members are requesting more learning opportunities and resources in the emerging areas and more networking opportunities among junior and senior members from different sectors.

As an addition to the membership survey, we also sent out a brief Lapsed Membership Survey and received 44 valid responses between October 14 to October 28. The top reasons of dropping DCHE membership are changed job responsibilities and no longer

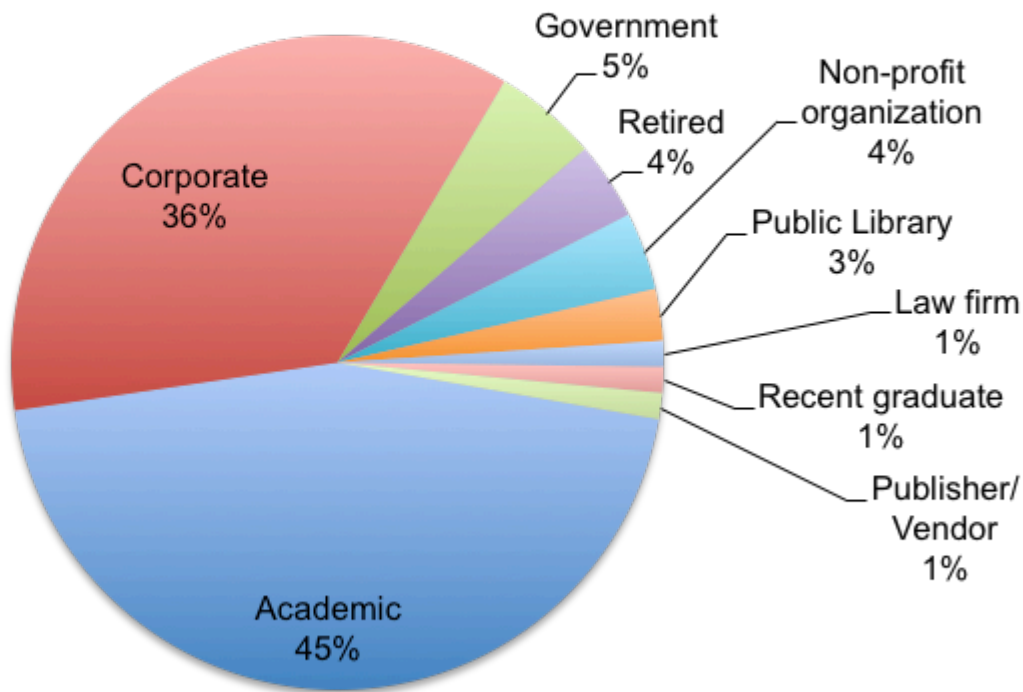
affordable membership fee.

We would like to thank our board members who helped design and disseminate the survey. All the responses to the survey are greatly appreciated too. We encourage our members to read the summary of the survey result in the appendix. Our board is working on a draft of our strategic plan based on the survey and we welcome any suggestions and input from our members during the planning phase.

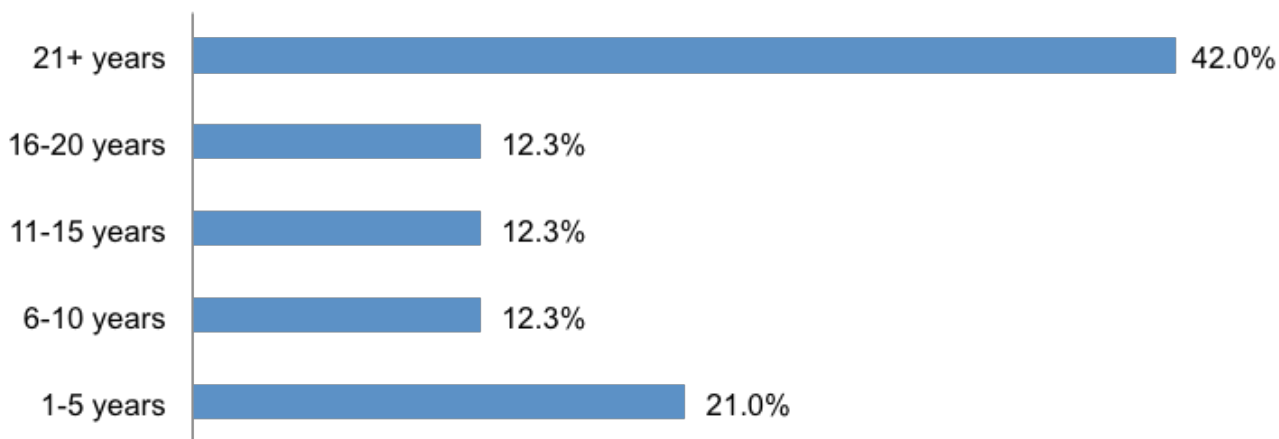
## Appendix: Summary of DCHE 2015 Membership Survey Result

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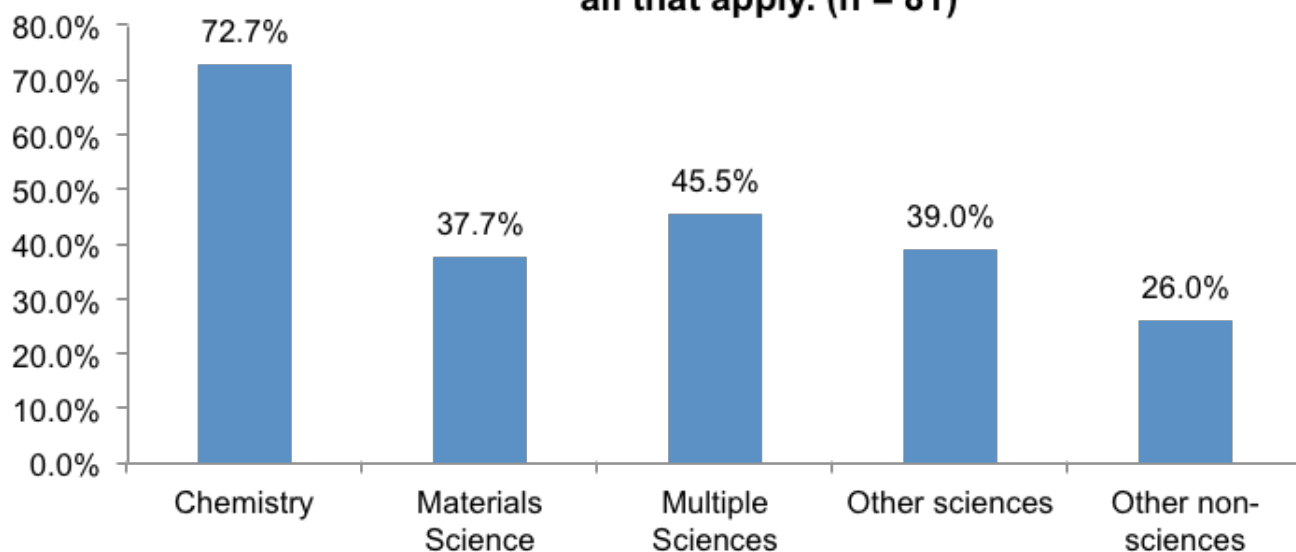
### Q1 What type of library or information center do you work in?(n = 81)



## Q2 How long have you been an information professional/ librarian? (n=81)



## Q3 In your job, what is your area of responsibility? Check all that apply. (n = 81)



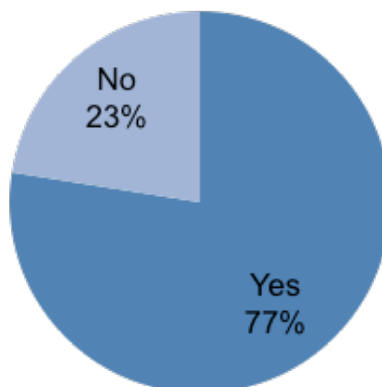
### Other answers to Q3:

- Biology, Physics, Geology, Nursing
- Linguistics and Latin American affairs
- At Polaroid Research, Cambridge, MA from 1978 to 1996, I was responsible for finding and managing information in chemistry, optical sciences, polymer sciences, technical business, patents and industrial secrets, and some blue sky ideas that crossed lines.
- Provide reference, search support (includes technical literature, patents, company, industry and markets), content management, vendor liaison, training on information sources and search tools. Clients of the information center are the business, scientists and engineers in the area of chemistry, chemical engineering, engineering in general, materials science, petrochemical

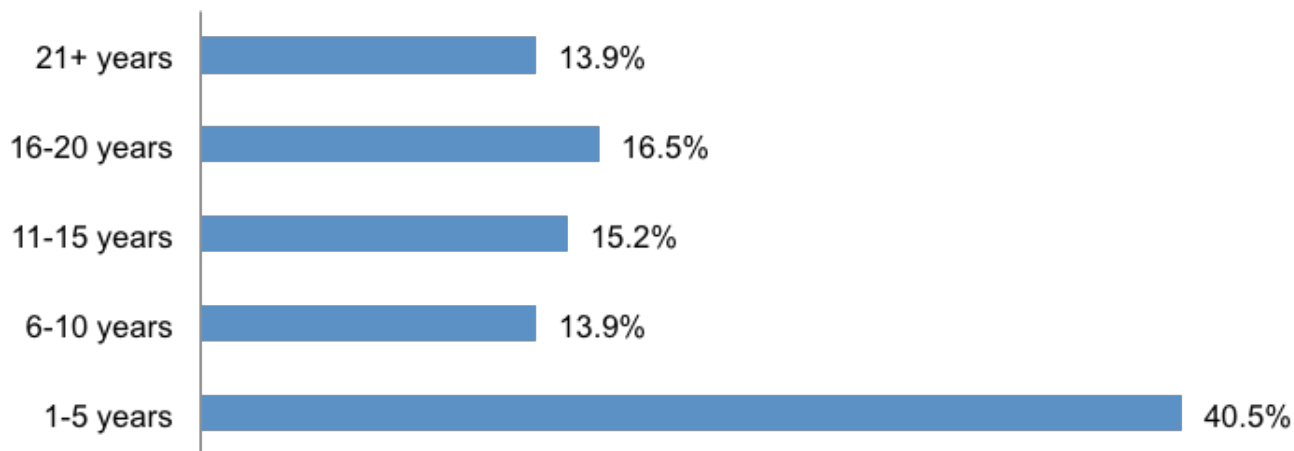
industry, competitive intelligence and markets as well as markets where chemical derivatives are used.

- Microbiology
- Chemical engineering, mechanical engineering
- Humanities, social sciences
- Nursing, Biology, Chemistry & Physics, Economics, Science Education
- Environmental sciences (geology and atmospheric sciences)
- chem, environmental science, computer science
- write papers on natural product, nutrition, and epidemiology
- Engineering
- General reference at a public library - all subjects
- Environment, Energy
- Mathematics & Statistics
- Promoting STEM now STEAM learning in Public Libraries.
- all subject matters as needed
- Polymers & plastics, petrochemicals plus related IP and marketing/competitive intelligence information
- For many years I worked with the literature of chemistry, engineering, aeronautics/astronautics, medicine, and bioscience.
- business
- Biology, chemistry, physics, math computer science and marine science
- Management
- physics, science data
- I am responsible for all the engineering, science, music, and geography/gis areas.
- Engineering
- biology, geology, Kinesiology/Physical Education
- Engineering
- Competitive intelligence, business/market research.
- Along with Chemistry and Materials Science, also Physics and Engineering.
- Reference
- Multi-disciplinary

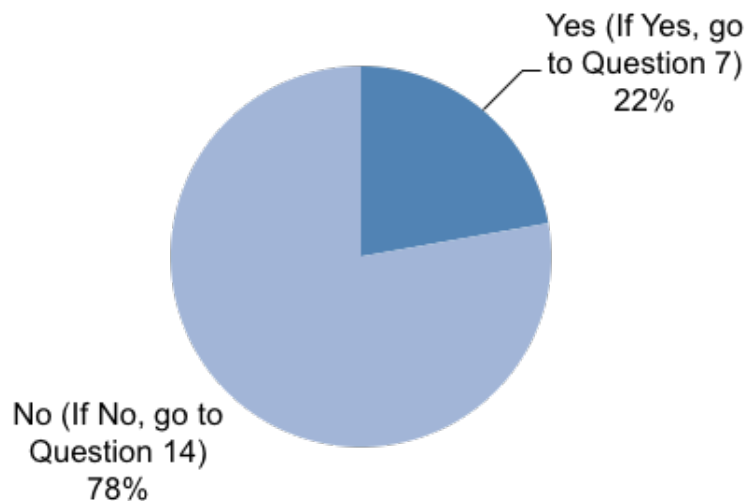
#### Q4 Is the Chemistry Division (DCHE) your primary division? (n = 81)



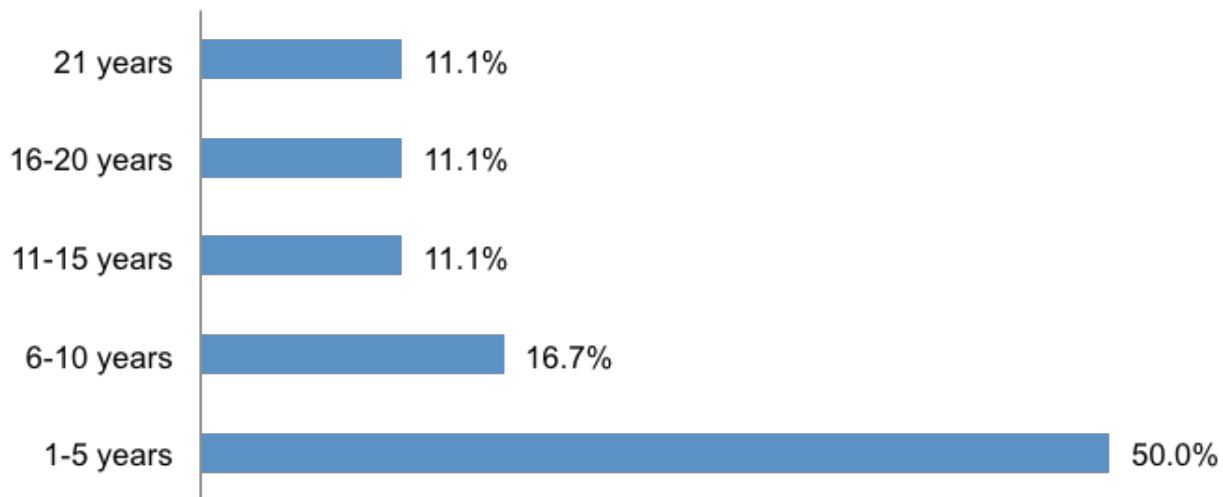
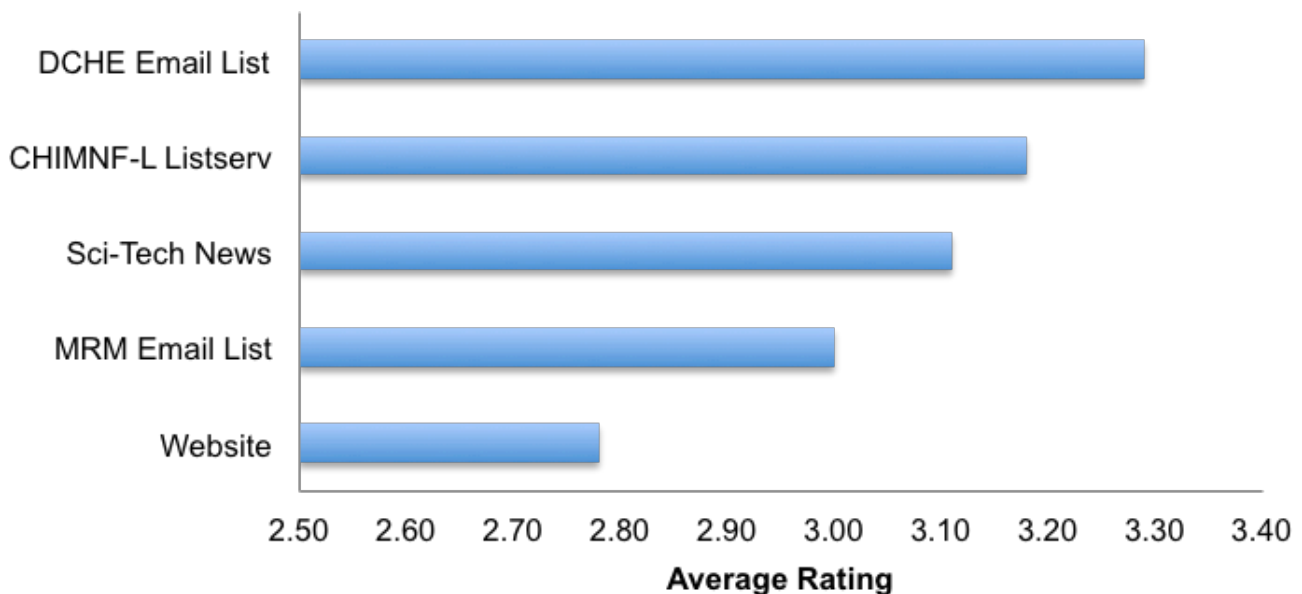
**Q5 How long have you been a member of the Chemistry Division? (n = 81)**



**Q6 Are you a member of the Materials Research & Manufacturing Section (MRM)? (n = 81)**

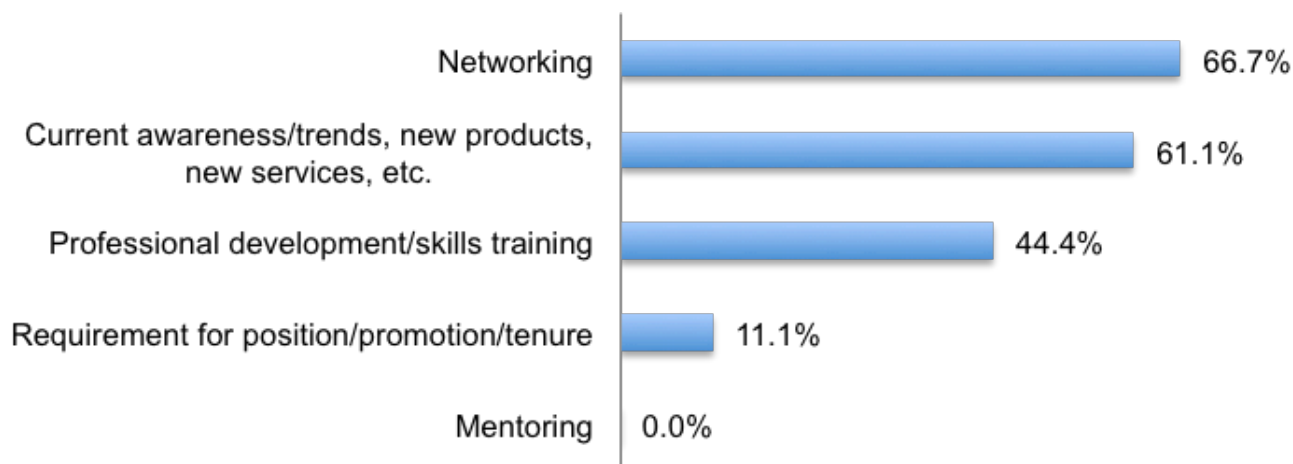




**Q7 How long have you been an MRM member? (n=18)****Q8 For receiving information from MRM, please rate the following communications methods: (n =21)**

Other: would rather see MRM info incorporated into the DCHE website/newsletter (e.g. scitech news) or email list rather than a stand-alone site or email list.

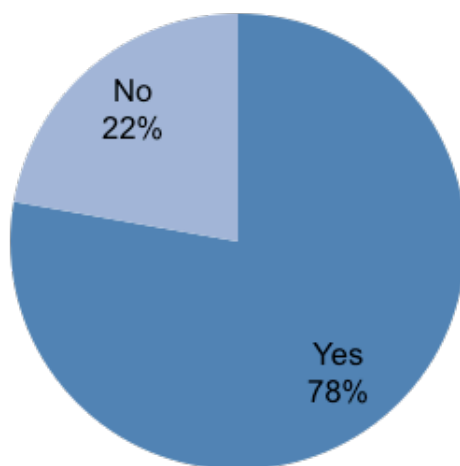
**Q9 What value does the MRM section bring to you? (Check all that apply) (n =18)**



Other:

- I believe that MRM should just be incorporated into chem division, as it gets tough being a separate section.
- Not sure.

**Q10 Does the MRM section name, Materials Research & Manufacturing, still reflect the particular focus of the section? (n = 18)**



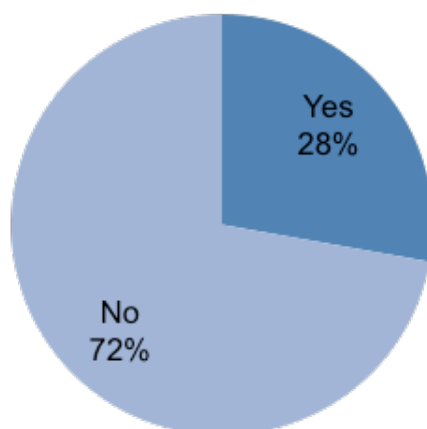
**If No, how would you propose to modify the name and/or focus of the section**

- Materials Science & Technology or Materials Science & Engineering (either way denote or encompass the "manufacturing" part by another perhaps broader word)
- Hasn't been a lot of activity so I'm not sure what the main focus of the section is.
- Maybe "Material Science" section ? It seems more inclusive.
- NA

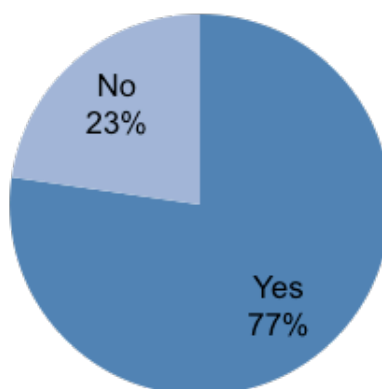
**Q11 What can be done to encourage more participation in the MRM section?**

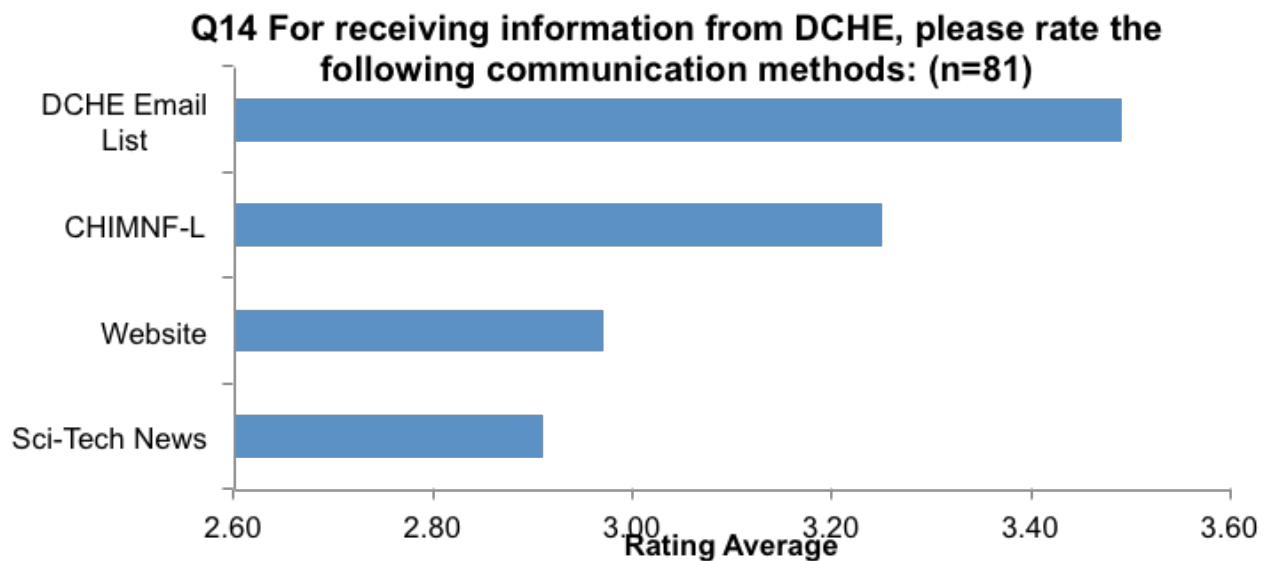
- Show me how it is relevant to academic libraries to justify the cost of membership. I attend the conference presentations it sponsors but I can only afford so many library memberships. I have to set a limit somewhere.
- highlight contributions from its members in e.g. a monthly email on DCHE, or find reasons why current members are in MRM also and highlight that.
- Make the MRM offerings very obvious.
- More awareness of the purpose of the section?
- Notify new members of the group
- include the topics in the division...otherwise, it might be more Science & Technology (which I'm also a member).
- More focused programs and collective effort in developing up-to-date resources for info specialists in material science area.

**Q12 Should the MRM section be eliminated? (n = 18)**



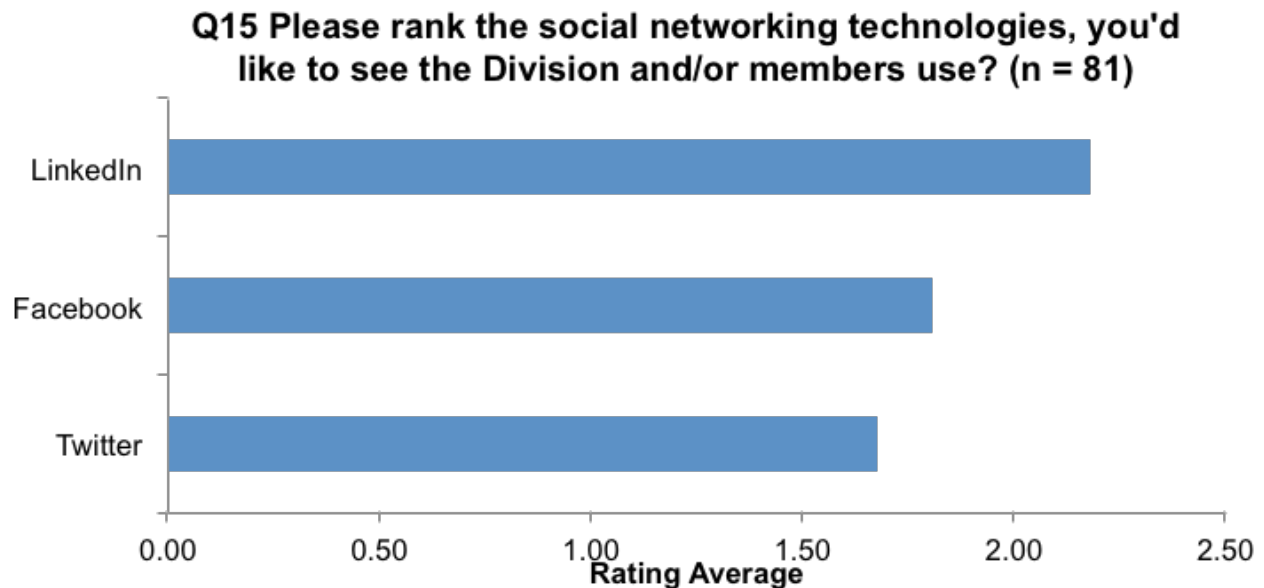
**Q13 Would you continue to be a Division member if the MRM section was eliminated? (n = 22)**





**Other (please specify)**

- People talking to people trumps every other method.
- Because I must maintain awareness of so many disciplines, I can often only manage some moderate level of monitoring websites, listservs, etc. Too much to do in too little time. I am not happy about it, but it is true.
- What is the last one? I've never heard of it.
- no comment at this time
- Don't know what CHIMNF-L is.
- RSS Feed
- I usually delete CHMINF because it's mostly academic librarians



**Other (please specify)**

There are too many to list. The top 3 are above.  
podcasts

I am a member but rarely visit LinkedIn or Twitter. And who has the time?

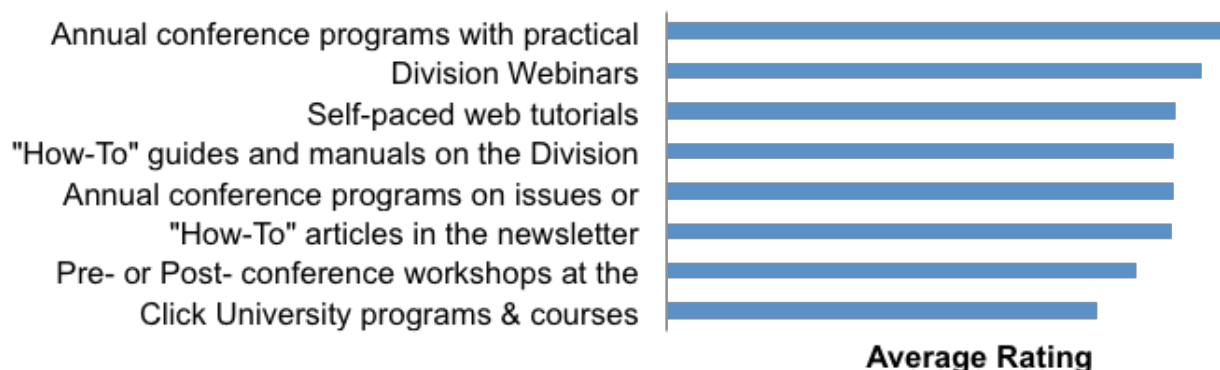
Although I'm not involved with social networking technologies, I wonder if I should be more interested.

I don't use Facebook or Twitter for professional matters

Not permitted to use social media during working hours..



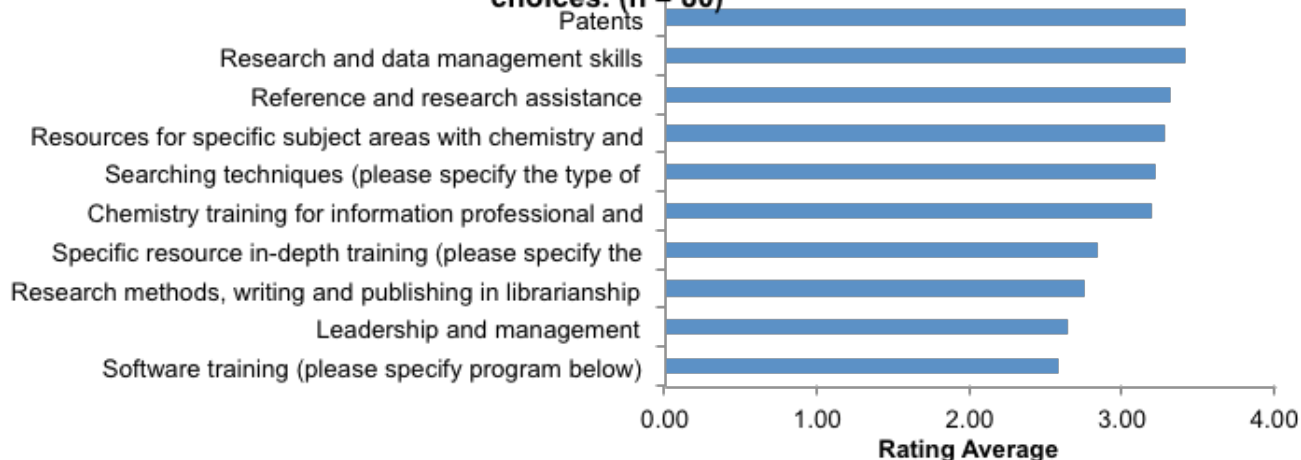
**Q16 Please rate the following methods of delivering professional development activities that enable members to maintain their skills and learn new ones? (n = 81)**



**Other (please specify)**

- Webinars on best practices covering issues such as recommended info sources, online research, etc.
- Online courses do not work for corporations who have a lot of computer security. Would need to work from home that day and use my personal computer.
- archive division webinars
- streaming of division sessions as possible
- I like the SLA Conference but I have not attended the past two years due to the expense. Other conferences were just more relevant to my current job activities. CLICK University courses might be appealing if they were relevant and affordable but some online classes have been increasing in price. Although they do not include travel costs, I have sometimes been disappointed in an online class because it did not meet my needs or expectations.
- I have not been able to get to an annual conference in a long time.
- We can't travel at my organization so I never go to conferences

**Q17 On what subject areas should the Division focus its professional development and conference programs? Please rate the following choices. (n = 80)**

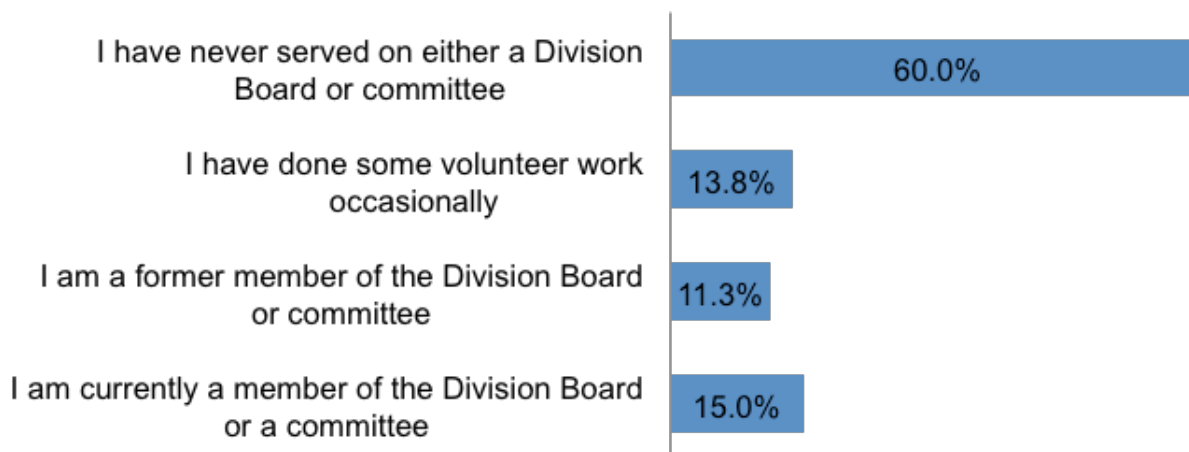


## Q17 Comments

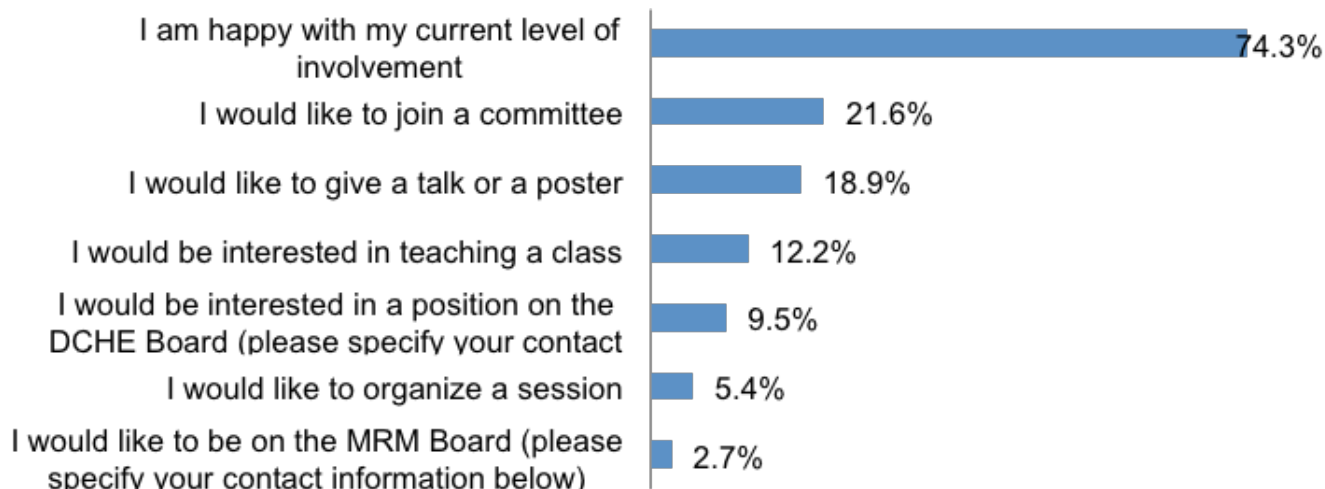
- No specific programs, resources, or subject areas to mention at this time
- Sources for chemistry, chemical engineering, materials science, other science and engineering fields. Deep research databases for librarians who do in-depth searching, e.g., hold vendor training days before or after conference - STN International/Chemical Abstracts Service/Fiz Karlsruhe (all databases), Dialog (all databases), other information aggregators. These would be day long or two day training on using these tools to their highest level. These tools are far than end-user search tools. New librarians don't tend to have exposure to these important tools in library school. Too much emphasis on Knowledge Management and Information Management (both necessary but not all librarians need to know). This type of search experience is disappearing and the people (non-librarians) trying to do it, do not know very much about search engines or content.
- SciFinder Scholar, INSPEC
- Searching interface: Dialog, STN. I don't believe I can really help with specific subject areas, software programs and resources for in-depth training as I am no longer involved in selecting sources or using software and resources in the chemical sciences very much. I see these aspects as valuable but they do not apply to my current job but could apply to a future job.
- Any specific subject area would be useful. SciFinder, Reaxys, NCBI databases are specific resources.
- High-level programming languages, both procedure- and object-oriented. Most-used operating systems. Chemical structure representation & nomenclature.
- Chemical safety
- polymer searching, sequence searching, structure/substructure searching
- Other areas to include in any training session (not necessarily a separate course) -- copyright in the sciences and scientific literature (e.g. we often received questions about copyright for sending articles to regulatory agencies).
- Keep the training fresh and relevant, so having some data management and data curation training as it may pertain to chemical and materials area would be great.
- Chemistry and Materials subject areas: searching polymers and materials in patents esp( e.g. how to search for layered materials, blends of polymers, or composites).
- Leadership training should be through LMD not DCHE.
- Medicinal Chemistry
- Reaxys
- Spotfire
- Now that you mention it, resources or search techniques on materials would be helpful, with maybe some background on how properties for materials differ from chemical properties. Sources that are free would be of special interest - we can't afford all the high priced fancy databases!
- For software training: maybe anything with visualization or handling large data sets? Related techniques would be welcome too.
- No specific resources, techniques, etc, just in general
- In-depth training/advance techniques for SciFinder, Knovel, ASM databases. Patent searching. Finding property data.
- Courses or webinars on new databases and highlights of their key features such as SciFinder, REAXYS etc.
- Free or reduced cost webinars (that can be accessed via archives/on-demand)
- Any patent research info is helpful.
- Interested in how other libraries use e.g. SharePoint, do content management, ELN, etc. I get patents info via PIUG. Interested in finding out about new useful resources, databases, websites in sci-tech area and how to better search "the usual suspects".
- Anything metallurgy and materials related would be useful.
- Polymer searching in CAS databases
- Business of Chemistry sources
- biomedical materials
- scifinder, patents, In-ChI, SMILES
- I would be interested in identifying significant software and databases and their specific uses that the library should promote within the constraints of current library budgets.

- I would like to see the resources for specific subject areas done for chemistry in the following ways: 1) comparative looks at tools and techniques that can be used in various types of chemistry searching, 2) vendor updates on new products with time for Q&A, and maybe even some critical commentary from librarian users/early adopters. I'm interested in pretty much anything to do with any area of chemistry except engineering and analytical chemistry. The same goes for the specific software and resource training; I don't have particular needs at this time, but I would like to see us cycle through the various options at different conferences.
- I am primarily a patent searcher although I started as a reference librarian.
- Subjects: nanotechnology, organometallics, pharmaceutical/biochemistry
- Searching techniques: more effective use of Google Scholar/Patents, other free databases (NCBI?)
- Software; R, Matlab/SciLab (free)
- training in LaTeX, searching in Reaxys
- data visualization software, excel, statistics
- Specific subject areas: organic chemistry, environmental chemistry, biochemistry
- Searching techniques: SciFinder, Reaxys, others
- Specific resource: SciFinder
- In-depth understanding of Chemical Abstracts and what it covers now and what it covered historically.
- New STN search methods
- Advanced search techniques in the areas of close relational logic and the use of database attributes such as thesauri, specialized codes, etc.
- I use platforms like STN, Orbit & Scopus. Would love to see training on analysis & visualization -- more what to think about about than the actual how to.
- polymer chemistry
- Analysis of search results; tools to help analyze data.
- Search techniques: substructure, markush, optimizing keywords
- Software: mat lab, Gaussian, basics of what chemist use
- Specific Tools: SCIFINDER, Reaxys, CSD, free resources that have quality info.
- SciFinder searches (seems to me the SciFinder does not go deep into searching techniques). I can't go for CE courses because my library won't pay for it. Step-by-step would be useful because I take care multiple science areas and I don't necessary have background in all sciences!
- Research and data management skills
- Research methods, writing and publishing in librarianship
- Training on Reaxys and SciFinder Scholar and how these databases can be best utilized in academia, corporate and government.
- Patent searching and applicable training as it pertains to information professionals.

**Q18 The DCHE depends on volunteers. What is/has been your involvement with the Division? ( n = 80)**



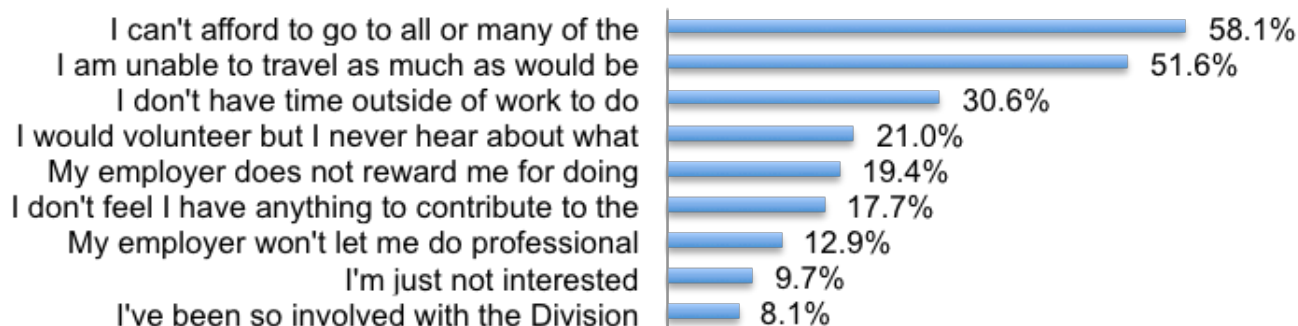
## Q19 How would you like to be involved in the Division? (Check all that apply) (n = 74)



### Contact Information

- Contact information omitted to protect individuals' privacy. Five people who are currently not serving DCHE board left their email addresses.

## Q20 What obstacles have you encountered that have prevented you from being more involved with the Division? (Check all that apply) (n = 62)



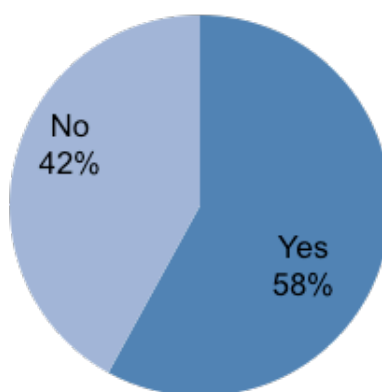
### Other (please specify)

- Currently my library is extremely short-staffed, and our recent reorganization, and post-reorg activities takes up more of my time.
- Lack of clarity about my own personal and professional goals, and any potential role I may play within the DCHE
- Remember: I enjoy my retirement and no longer do consulting. Vicarious participation is OK.
- Retired and don't want active participation but like to be informed about what is happening.
- Can do volunteer activities at work, but we are very low-staffed right now so don't have time.
- I joined as an MLIS student and just recently obtained my first full-time library job. As a student I was unsure whether I would even be responsible for Chemistry departments/information in my future job. However, I am a Chemistry liaison in my new job so the main obstacle is having enough time to become involved in the Division while I am being trained and learning my new job.

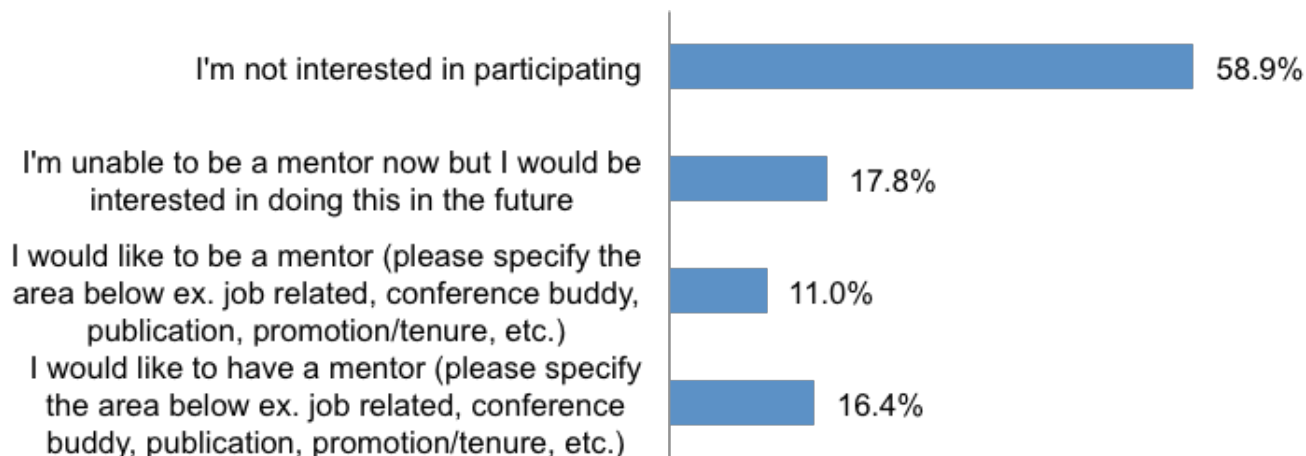


- Heavy commitments to another professional organization.
- I've been more involved with ASIS&T and ACM.
- I have too many other professional activities that I may only disappoint DCHE by not completing work.
- I have been very involved with the Solo division
- I have some serious concerns about SLA and it's mismanagement, wasteful spending, and whether or not it will survive having nearly been run into the ground by unscrupulous leaders.
- Although retired, I plan to be active in the Division for a few years yet.
- I am also currently serving on my local chapter's executive board.
- I only just graduated, so I expect that at least the money for conferences will hopefully soon not be an issue.
- For the past six months I have been working two jobs and haven't had the time. My schedule will lighten in August and I will have more time to participate.
- I volunteer in other Divisions that are more closely aligned with my main subject area. Chemistry is a secondary interest.
- Unfortunately, I am a solo at work with very little time to contribute
- I am retired now
- volunteered for mentor/mentee and it works great so far. I involved in other divisions for past few years. Would like to come back.
- I feel that I am plenty involved with the Division, and further involvement would interfere with my life outside of work.
- I've been very active in other divisions
- I am more involved with another SLA Division
- I'm already very involved in my local chapter
- Money is the main issue. too costly.
- I am on my Chapter Board.
- I'm involved.
- See above comment.
- Lots of demands at work. I need the network more than ever but may not have time to do justice to projects. Prefer not to travel so far or so many days away.
- I have wanted to volunteer this year and I'm sorry for not doing so. I have been working two jobs and am exhausted. Once, my hours change I would like to become more involved. In addition, meeting more members at the conference will be beneficial and I can learn where the real need is as regards volunteering and related activities.

**Q21 Were you aware of the Division's mentoring program?**  
(n = 81)



**Q22 In regards to mentoring, please check all that apply: (n = 73)**



**Comments**

- I would like to participate but not at this time
- I did do some mentoring while I was employed.
- time constraints prevent me from being involved.
- help with obtaining a job more in the field
- job-related and conference buddy
- I would welcome the chance to work with a knowledgeable chemistry librarian to give me help with better teaching an instruction session I do every year on chemistry research.
- Conference buddy, possibly also interested in publication related
- However, my current responsibilities take up almost all of my time.
- Denise Callihan is my current mentor. It was nice meeting her in person at the conference.
- anyone here goes to ACS National Meeting in August -- Boston?
- I am happy to be a mentor to a new chemistry librarian, and I'm equipped to help people with publication, being new to chemical information, etc. I would like to have a mentor to talk about mid-career issues, particularly related to advancement, work/life balance, and important things to do and keep up-to-date with outside of day-to-day work so that, if I have to move jobs, I can still be a viable candidate.
- Would like to participate in the future but not now.
- I don't feel I need a mentor currently, but I also don't feel ready to mentor anyone either.
- Thank you for matching me with a conference buddy!
- I currently do active mentoring of my coworkers. This is as much as I can do at this time.
- any/all areas of need
- Job related
- I need a mid-career mentor to help me stay clear on what's next in my career but also would like to help junior members to grow in their early career.
- I have a mentor and I am extremely grateful.

**Q23 Please comment on how your job has changed in the past several years.**

- Currently my library is extremely short-staffed, and our recent reorganization, and post-reorg activities takes up more of my time.
- I'm in a transition period right now, so it would be hard to come up with specifics concerning this question
- My retirement has evolved to provide more joy, Opportunities for writing memoirs, travel for pleasure, companionship with my spouse.
- Less staff and more to cover. Now a 'global' information center instead of one site.
- I recently went from being the Patent & Trademark Librarian (general librarian) to being the Science Librarian (assistant librarian)
- retired 5 years ago
- N/A, I just started a few weeks ago
- I had a full-time permanent position with a private chemical company for 12 yrs. They got rid of their library and librarians. For the last 7 yrs I have had a part-time temporary contract position with a public pharmaceutical company.
- 1. Less library support staff so I spend my time doing routine tasks.
- 2. More time spent on new employee orientation / awareness -- making new employees aware of information center services.
- 3. More time spent teaching end users how to become more "information literate" -- how to use information center resources and databases.
- Budgets shrinking (in proportion to expenses), new duties re: scholarly communication, open access, etc.
- I'm retire except for guest lectures and consulting.
- Fewer people doing more work. Librarians are covering more disciplines than before. There is a push to embed librarians in the departments. This is welcome but has increased my workload. And then we are also asked to do more work elsewhere in the library, too. The library also wishes to throw away books and rely more on Interlibrary Loan. I see this as risky and not well researched.
- Due to downsizing I now have taken on a larger Record Management Focus.
- My best users may never set foot in the library. They use their resources in the lab, which is fine with me so long as they know I can help them.
- As with all information science, most of the change has been in media and delivery -- less paper, more electronic.
- Well...I graduated in June so the changes for me have been huge. :P
- Not much.
- My subject responsibilities have shifted from chemistry over into engineering (includes chemical engineering and the material sciences). The number of students and faculty which whom I liaison has increased over threefold and is continuing to grow. Our library has a new director with new directions he wants us to go and job responsibilities are changing.
- I stopped working in a special library when the company was sold, and found work in a public library. I kept my special library membership.
- Less professionals to work with, more information in various languages to cover
- New responsibilities which include membership on the library web team.
- I was a school librarian in Miami-Dade then I went back to graduate school full-time, during that time I worked as a GA in the Engineering & Science libraries, it was there that I became interested in chemical information with the guidance of Jan Carver. I shadowed her information literacy courses and was exposed to scientific literature and their databases. I then took an independent study course on Patent Research. Now I am in a public library and am enjoying it, however, my dream job would be in the science area of library science.
- Have moved from 50/50 literature/patent searching to >80% patent searching
- Overload of information sources. Technology advances might help but the Federal Agency I work for won't let us use them. No official Facebook or Twitter or other social media except at the topmost levels of the organization.
- Continue to be very busy (Probably even more so)
- Got rid of actual library space.
- Too much safety management system activities, on top of other non-library related activities.
- more online resources, less face-to-face service for customers

- Get involved in the professional librarianship after graduating from the library school 2 yrs ago
- Expected to do more with less - support NIH, grant planning, more reference questions, more instruction sessions, etc. but with less staff and money
- More interest in Facebook rather than in a solid understanding of basic science, its literature, and the clients
- still have liaison duty to those physical science departments, but now with most thing online, digital, big data, open access, author rights, patents, grants, app., etc. Too much to keep up.
- There is less direct involvement with patrons. As budgetary support dwindles, there is more emphasis on patron instruction on the use of available resources, especially electronic.
- I have moved from answering reference questions in chemistry to teaching students to answer their own reference questions. Most of the things on which I am currently consulted deal with permissions and copyright and now research data practices.
- Downsized library & staff. Employees doing more of their own research. spend more time training employees and evaluating resources for employee direct access
- I now give an overview of resources but everyone now is an expert and therefore I do not receive requests for assistance as much as I used to.
- I went from reference librarian which include some searching to a full-time searcher
- More about people and connections than books/things. Also, all the data.
- I have closed our chemistry library and am currently closing our physics library. I am working to maintain liaison relationships with these faculty.
- Less reference more data management, more instruction, more analysis of use statistics
- Since moving to part-time status (voluntarily), all I do at work now is online searching and go to meetings. There is no time left for professional activities such as collection development.
- do more general things.
- I am less involved in research now and focus on collection development and access to electronic resources.
- I am responsible for a wider range of services.
- we moved from a focus on library and end user training to indepth research and writing reports.
- A real focus now on analysis/visualization of search results and showing impact with our publications
- New Dean. Materials are mostly digital. Space is becoming collaborative and shared.
- In recent years, OA, data management, social media, too many apps and we live in a digital environment (e-book, e-journal, etc) and I don't quite catching up fast enough with it.
- Emphasis on data services and research workflow involvement. Less demands in traditional information discovery and access services.
- Taken on additional duties and subject areas
- Over 40 years in corporate to 7 years in academia

**Q24 What are the top (3) challenges you are facing today or see for the future of librarianship/information profession, especially in the area of chemical and materials science specialties?**

- Reference: What should reference services be/become in academic libraries. Time/Tools to keep track of everything we need to be aware of/provide help with. Working with library administrators in our own organizations who are also struggling with questions of what academic libraries should be/do/offer, and coming up with solutions, courses or action we all agree are useful/possible/worthwhile.
- 1. Continued displacement of the search function from the reference desk to the desktop
- 2. LIS professionals' continued reluctance to advertise their knowledge and capabilities
- 3. The need to get out of the library and to go out and find the users wherever they may be
- 1. Persuade CEOs that information management is the lifeblood of their organizations.
- 2 and 3. Educate the public, government people, and fellow workers in the critical value of info.
- The question "why do we need a librarian when everything is online?" - constant need to show our value to the organization.
- Need more librarians who concentrated or want to learn technical and patent searching and who have in-depth knowledge of sources and where the sources are available online (or not).

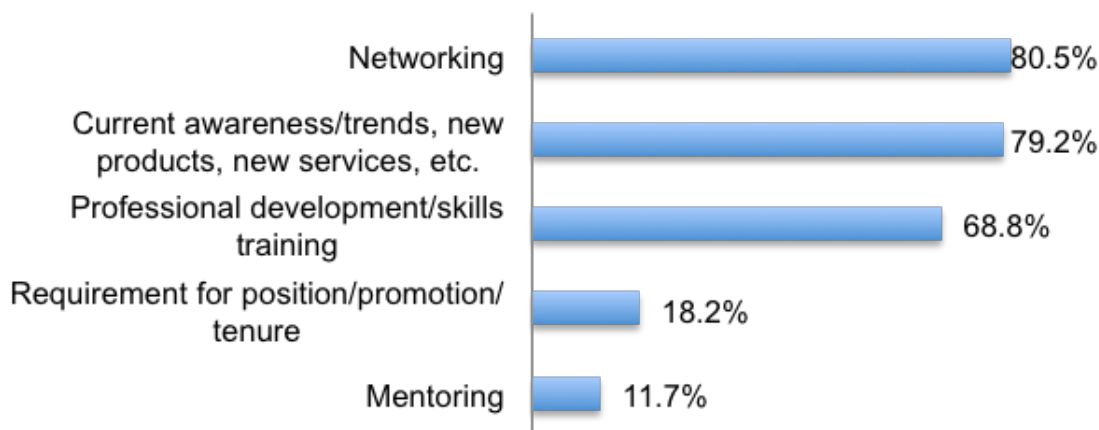
- Faculty Involvement
- Student Involvement
- Travel funding
- 1. Lack of interest/investment from faculty
- 2. Reaching all of the students from the major
- 3. Keeping up with all current trends and technology
- Corporate jobs seem to keep disappearing as companies believe their employees can find everything they need on the Internet. They don't care if the information that is gathered (if the employees do gather any information) is accurate or good information.
- 1. Chemical information publishers / providers have not kept pace with Google -- databases can still be cumbersome to use -- not intuitive like a Google search.
- Cost of resources
- Aging workforce
- Digital/mobile environment makes traditional forms of interaction with users less frequent
- 1) Public ignorance, especially confusing chemicals with toxins and poisons; 2) confusion professionally over what is meant by 'materials science'; 3) information professionals without much physical science background.
- The library cannot afford to buy the chemistry materials requested by faculty and students. The librarian is being asked to do more and more and feels she is less able to stay current in chemistry and other assigned disciplines. Harder to know details.
- Subject expertise is not valued in non-research universities like mine. I believe this impacts the quality of the education I can provide. Librarians are not being taught how to do research well and they subsequently don't know how to use research in their own field.
- Downsizing of corporations in for these subject specialties. Companies replacing training professionals with electronic resources so people "can do their own searching"
- Budget cuts
- Affording the resources!
- Outreach to scientists who think they don't need me (but they do!!)
- Continuing access to information, tools and software that can keep up with the growth in information, maybe some mechanism to provide discernment between junk science and peer-reviewed content
- Seems as if more librarians in the science areas are having to be versed in multiple science areas not just "chemistry" so keeping up with just the technologies is getting more difficult and time consuming. It was always a challenge for us to keep our customers/clients/users informed as to our value (they received so much info at their desktops, that they forget that it is info pros who actually work with the vendors to bring that info to them!).
- 1. I don't know if my job responsibilities will continue to be subject-oriented.
- 2. I don't know if my job will shift into areas for which I have no interest.
- Scientists take less and less time to search because they want results fast.
- Corporation are cutting the Library staff to the minimum, namely ONE
- Engaging undergraduates early in their academic careers.
- affordability of chemistry information resources
- demonstrating the value of the library to the university and to the state government
- Finding a position with limited experience in the field of choice.
- Loss of specialized indexing & abstracting databases, coverage of open access materials, staying copyright and license compliant vs client desire to share info broadly
- Ability to access resources with limited money to spend.
- 1) Too much to do, but not enough time in the day.
- 2) Decrease in staffing since 2008/9.
- 3) Difficulty getting more money/funding for additional staff.
- I am not even sure what other librarians in these areas are facing. I keep getting spun off into non-library activities, and have to go back and try to cram in essential library activities.
- no more subject specialists with a science degree at the library; we should be able to serve all disciplines
- expensive chemistry databases and journals



- ELNs  
Keep relevant with other science librarians
- How big data influence chemical information?
- Fewer positions for specialists - chemistry librarianship is still very specialized, but these positions often get lumped into liaison roles with many other science departments. It's hard to specialize in chemistry let alone engineering, physics, etc
- Respect for the abilities of science librarians and what we can bring to the research team
- open access and management of digital resources
- Financial constraints while there is a rapid growth in available information, especially in electronic form  
Proving the Library's importance to the educational and research process
- 1) Closing of academic departmental libraries, making it more difficult for librarians to form relationships with user communities; 2) Changing of job titles and responsibilities, giving chemical information providers less time to focus on chemistry; 3) Cost of chemistry materials out of line with library budget increases.
- Less focus on primary research and employees doing less literature searching or being satisfied with what is found from "google" search.
- 1. Researchers (PhDs) who have obtained their degrees using only google scholar and see no reason to consult librarians. 2. Trying to fight for the funding to maintain a chemistry journal collection. 3. Finding candidates for library positions who have a science background.
- 1. Data  
2. Data  
3. Data
- Basically - reduction of resources from organization but still trying to accomplish the same level of service. It's less about the container the information comes in and more about the information itself and how to find and organize it.
- budget cuts and impacts on collections  
working with publishers and complying with open access requirements  
proving relevance to university administration through assessment of teaching and other activities
- specialization of resources  
advanced knowledge needed  
lack of resources for continued training
- 1) Rapidly changing electronic information environment related to Internet resources. Validity, quality, and veracity of some resources now available.  
2) Lack of information resource training of chemistry students in undergraduate, and most particularly, graduate schools of chemistry. (It is very noticeable that new PhDs are pretty clueless as to what information sources exist and how to use them, particularly print resources.)  
3) Lack of training available to search professionals on the content of online databases, including editorial policies, content selection, indexing methods and policies, journal coverage, etc.
- The area is being developed so quick and we need to keep up with.
- The biggest challenges revolve around working with the publishers to make resources available seamlessly and cost effectively to our users with the rights they need to make the most of the content.
- Cost of materials, lack of time to review new offerings, and budget constraints
- students aren't being trained on this in library school, so hard to fill qualified associates.
- Trying to self-train myself on viz tools
- Being a non-chemist/non-materials scientist, being familiar with the subject area.
- 1) overcoming the traditional view of librarians.  
2) being comfortable with space sharing, losing space  
3) reference away from a desk, staying visible
- Articulate my expertise and how I can help my user community.  
Expand the scope of my skill set as a data and information specialist.  
Stay relevant when information discovery is no longer the major concern by focusing more on screening and organizing information.
- Providing the right materials at the right time.
- 1) staying relevant

- 2) controlling costs but getting additional resource
- 3) embedding myself with faculty
- I would like to obtain a position in the sciences. I was exposed to the area of specialization while a GA during my LIS program. The challenge I face is finding entry-level positions.
- Difficulty with justifying library services. Budgetary

**Q25 What benefits do you feel you get from being a member of the Chemistry Division?  
(Check all that apply) (n = 77)**



**Other (please specify)**

- I said above I am not interesting in a formal mentoring relationship - but a good deal of informal mentoring happens on the list serve, and on the CHMINF-L listserve that is quite useful.
- The Division always has relevant seminars and courses! Good job.
- I don't even receive the magazine! Other than some helpful listerv announcements--not much.
- I enjoy the list discussions
- The DCHE board is awesome!!

**Q26 What new benefits or services would you like to see the Division provide in the future?**

- DCHE could serve as an information clearinghouse for best practices, training opportunities, future trends, etc.
- Generally it is doing great.
- SLA often puts the same type of seminars during the same time period, and then there is nothing for half a day that is relevant. I have to search for something in a less important area.
- Have an increased online/webinar presence so that meetings and events can occur without requiring travel.
- None.
- Nothing comes to mind.
- Webinars!
- How can our division work with other related divisions (e.g. SciTech, BIO, etc) to bring relevant courses or webinars or program content to our members.
- I wish there was more subject specific professional development and skills training
- I cannot think of anything at this time.
- webinars
- Lower cost conference courses.
- More free webinars for those of us who can't travel to meetings.
- I am probably not even adequately aware of what the Division is providing right now.
- need to get back to talking with chem folks

- I would like to see a mid-career mentoring track to help people who have been working in the field for a while and wish to enhance their career, change within their jobs, or become more marketable should they choose to leave their jobs.
- More programming at conferences
- Low the cost to attend conference
- Sponsor more webinars,
- offering more webinars would be good as travel is pretty impossible for me.
- none that I can think of
- Web tutorials, virtual networking beyond email
- More collective effort in developing resources like the Information Competency in latest hot areas.
- Maybe we should hold an introduction to chemistry resources for non-chemistry librarians webinar as a feeder program for our SLA Annual courses?
- More emphasis on how and when to publish
- Interacting more with members virtually via webinars, etc.

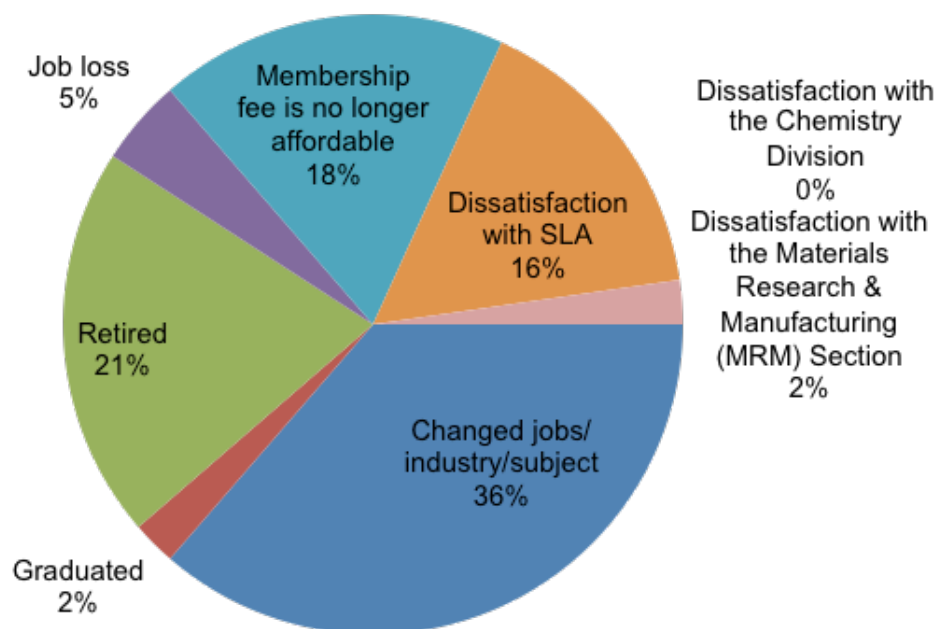
#### **Q27 In what ways can the Division help you prepare for future professional challenges?**

- Provide a balance of opportunities for both junior and senior members
- None for me.
- Keep providing seminars about content/sources and search tools. Provide seminar speakers who talk about what is happening in the chemical industry - new patent laws, regulations, trends, new search engines or tools, management of R&D/Technology libraries, management of corporate chemical industry libraries. Business, company, industry information sources that apply to the petrochemical industry and markets where derivatives are sold.
- Promote chemistry librarianship/chemical information as alternate career path to laboratory research for chemists
- any guidance would be helpful, perhaps resume ideas?
- Continue to offer professional development, but maybe expand into more online media so that if I can't attend the annual conference I can still get the professional development.
- None.
- Keep offering webinars, newsletters and sharing of knowledge.
- More information on transition to leadership.
- I cannot think of anything at this time.
- publize new ways or Tools that will allow each single librarian to perform jsu as if we were 3 or 4 librarians
- I can learn from other's past experience and receive mentorship on potential paths I can take to break into the field.
- Not sure.
- InChI, SMILES what are they? what to do with them? does scifinder uses these? how?
- I can't think of anything that isn't already helping. I'd like to see more joint sessions between academic and corporate librarians so that I can know how to prepare my students for life outside of the ivory tower.
- More trainings & classes
- offering more professional training through webinars
- As I am nearing retirement, I have no opinion on this.
- Continuing to provide areas for discussion around current topics of interest to division members. Making training opportunities more visible.
- Not sure at this time
- Sharing stories. Support
- Better connection and collaboration in research and service development with other members and leadership opportunities.
- A bit more leadership activities
- More programs with journal editors to learn how to publish
- The division can help prepare me for future professional challenges by mentor opportunities, professional development and networking.

**Q28 What else would you like to tell us?**

- Thank you for providing this survey and for allowing us to express our ideas and suggestions
- Thank you for the opportunity to reflect views of a retired but formerly very active info manager. You have some amazingly talented leaders.
- Thank you.
- If you ever need ideas about programming, I will give my input. I might also have ideas for knowledgeable speakers.
- DCHE is a stellar division with talented and outstanding leaders and members. My sincere thanks to all for many years of DCHE support during my career.
- Thanks for the opportunity for us to express ourselves!
- Can you magic up more time for me? Too bad. :-)
- Nothing to add.
- Were it not for the Chemistry Division SLA would be an utter and complete waste of time. You all work hard and I hope SLA can survive.
- Thanks for listening.
- I cannot think of anything at this time.
- Thank You
- I was very happy with the Chemistry Division's sessions. I also thoroughly enjoyed the poster session and was impressed with the presenter's work. It seems like a cohesive group of professionals with diverse backgrounds within the field. I hope I'm able to stay a member of SLA, this year was the last at the student rate.
- Thank you to all the volunteers for their great work!
- Not sure.
- I only joined SLA to go to this years conference, and I was only able to do that because I had one time money. My institution does not pay for my memberships, and we only get \$1000/yr for travel. SLA is simply too expensive in both dues and conference travel. I won't be rejoining. I can really only afford one conference and one membership - I'd rather be where my users AND librarian colleagues are - at the ACS conferences.
- it is tough to be involved in more than one divisions, but I have multiple science areas at work.
- I will certainly let you know if I think of anything!
- SLA is way too expensive for me to attend on a regular basis. What do we get from being part of SLA? Maybe we should just be a small separate focused organization.
- Plan the conference at lower cost locations.
- thank you
- Great group! Hope we don't get folded into science division
- I am liaison to many departments at work therefore, I have membership to many divisions at SLA. If I involve in a division at SLA I can't really volunteer with another division and it takes about 3-5 yrs to know the people, to work on committee and rotate to another division. it happens that one may get along well with one division but not with another division. One needs energy and support to volunteer with divisions.
- THanks for doing this!!
- I look forward to meeting more members of the division and learning about ways in which I can enter this specialization of library and information science.
- Thank you!

### Lapsed Membership Survey - The reason of dropping SLA DCHE membership (n = 51)



### DCHE Welcomes New Members

(Joining dates between July 2015 - September 2015)

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Carrie Wardzinski  
PPG Industries

### Materials Research & Manufacturing Section New Members

*Submitted by Bette Finn, Materials Research & Manufacturing Section*

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### The Materials Research & Manufacturing Section of the Chemistry Division Welcomes Its New Members:

Christina Keil  
San Diego, California USA  
USA



## News from the Engineering Division

Engineering Division

Sara Davis, Chair

The objectives of the Engineering Division are to provide an association for those having an interest in library and information science as they apply to engineering and the physical sciences and to promote the use of materials and knowledge for the benefit of libraries and other educational organizations.

Hello, Engineering Division members, Aerospace and ABCD Section members! It is October 15 as I am writing my last column for Sci-Tech News. Yes, time has flown! It seems like only 2 weeks ago that I became the Chair of the Division, alongside my colleagues, Mary Whittaker and Kati Arzeta, chairs of their respective Sections. And then one week ago we were in Boston for SLA's annual conference and now, it's time to begin to turn things over to next year's leadership, Giovanna Badia, Gabriele Hysong and Becca Smith. I know that our Division/Sections are in great hands for 2016.

OK, about last week and our time in Boston at annual conference. It was a wonderful time and from all the comments that I heard, our Division/Section programs were very well received along with the continuing common complaint, too many sessions that I wanted to attend happening at the same time. And as much as I wish each session could be offered at a time when it does not conflict with any other, doing that would mean we would still be in Boston right now! For a reminder of all those sessions, please see the last issue of Sci-Tech News.

Again, my deepest thanks and appreciation to our Division Planner extraordinaire, Penny Sympton! Her work, quietly done way behind the scenes, produced a set of programs that were thoughtful, well attended and are leading to a professional development program or two! In addition, Penny's recruitment of Niamh Tumelty as our 2016 Program Planner has led to a rich list of programs being prepared for Division members attending the Philadelphia conference in June, 2016. Penny, I believe I still owe you that drink I promised in Boston!

There are a number of others that I owe

thanks to: Andy Shimp for his advice and calm assurance that I would get through this year, in spite of myself; Christina Byrne for always making sure we had all our meeting minutes in proper order and posted for the rest of the Division and for her laugh, it always made me smile; Diane Brenes for keeping us on track financially and being willing to do it for another 2 years; Mary Whittaker & Kati Arzeta for heading up their Sections and doing so in a way that never caused me to worry/wonder about what was happening with them; to the rest of the Advisory Council for their unwavering support and willingness to head into 2015 with me as the Chair.

I am here to tell you, it truly does take a village to make our Division/Sections run smoothly and all going in the right direction. And even though the Association is going through some monumental changes these days (are you keeping up with what is happening....after all, it IS your organization!), our Division & Sections continue their work without a lot of upheaval. To each of those listed above, my deepest thanks for all of your help and support this past year. It is very much appreciated!

Now, that's not to say that I'm heading to the old SLA members home, I'll still be around next year, and probably a long number of years after that, and I'll be looking for those of you who would like to take on role of Chair of the Division for 2018. If you have any interest in helping out the Division, please let me know, the job is one of the most rewarding jobs you will ever have the privilege of doing.

And so, thank you, again, for the privilege of serving as your Chair this year. And to Giovanna, Gabriele and Becca, I welcome

you into your year as our leaders and look forward to working with you to move the Division/Sections into 2016!

In harmony,  
Sara Davis  
Chair, 2015, Engineering Division, SLA

## First call 2016 award nominations & applications

The Engineering Division provides a number of awards for travel to the SLA Conference and to encourage participation in the Division. This year the Division is pleased to offer three awards and one award in partnership with the Science–Technology Division.

Please consider nominating a peer or yourself. Deadline for the three awards below is March 01, 2016.

- \$1000 IEEE Continuing Education Stipend: The IEEE Stipend will be given to the qualified member who submits a personal statement which is judged to be the best submission addressing how the member will benefit professionally from a continuing education course. Details available at <http://engineering.sla.org/continuingeducationstipend/>
- \$1500 SLA Engineering Librarian of the Year Award, sponsored by IHS: The Engineering Librarian of the Year highlights the accomplishments and contributions of SLA Engineering Division members to

the engineering librarian profession. Details available at <http://engineering.sla.org/engineeringlibrarianoftheyear/>

- \$1200 SPIE Digital Library Student Travel Stipend Award: The award will be given to the qualified student who submits a personal statement which is judged to be the best submission addressing how the student will benefit from attending the conference. Details available at [http://engineering.sla.org/studenttravel\\_stipend/](http://engineering.sla.org/studenttravel_stipend/).

Deadline for the Bonnie Hilditch award is December 31, 2015.

- \$3000 ScienceTechnology and Engineering Divisions Bonnie Hilditch International Librarian Award: The award is given to a librarian outside of the United States and Canada to attend the SLA annual conference. Details available at: <http://scitech.sla.org/2015/10/applynominatefor2016-bonniehilditchaward2/>

## Engineering Division Executive Board Election Results

*Andy Shimp, Nominating Committee Chair, Engineering Division*

The Engineering Division is pleased to announce the new members of the Executive Board starting in 2016. Please join me in thanking these members for volunteering and contributing to the success of the Division.

### Chair Elect: Ashleigh Faith

Ashleigh Faith is the Taxonomy and Knowledge Manager at SAE International. She has a Masters in Library and Information Science and is currently completing her PhD, with a concentration in linking engineering knowledge and data, at the University of Pittsburgh.



Ashleigh is an active member of the librarian and information professional engineering community and currently serves as the SLA Engineering Board Mentoring Chair. She has also worked with the Transportation Research Board, NATO, NASA, Caterpillar and Deere, among others.

Her publications and conference presentations can be found at <https://www.linkedin.com/in/ashleighnfaith> and <https://ashleighnfaith.wordpress.com/>.

### Treasurer: Diane Brenes

Diane Brenes, Librarian at Boeing for a little over 27 years, has held numerous posi-

tions within SLA Engineering, including Treasurer (2014, 2015) and Award Committee Chair (2011, 2012, 2013). Diane participated as a panelist at the 2010 conference session "Information Literacy in the Workplace." An SLA member for over 20 years Diane wrote the Web Reviews section of SciTech News for two years 2006-2007.



Diane has worked in Boeing's Library Services since 1988 and currently works in the Huntington Beach Location. Her areas of expertise include engineering and business information research, and collection development, of which Diane leads the team. She has over 25 years' experience working in corporate libraries and holds a Master of Library and Information Science degree from Simmons College.

In addition to Ashleigh and Diane the members of the 2016 Executive Board are:

- Chair: Giovanna Badia
- Past Chair: Sara Davis
- Secretary: Christina Byrne
- Aerospace Section Chair: Gabriele Hyson
- Architecture, Building Engineering, Construction and Design Section Chair: Becca Smith

## News from the Aerospace Section

### Aerospace Section

### Mary Silva Whittaker, Chair

The Aerospace Section of the Engineering Division encourages communication and cooperation among information professionals concerned with aerospace, aeronautical and related technologies. In addition, it fosters dialog with entities such as NASA, the AIAA and other important sources of technical data and bibliographical services.



Greetings *Sci-Tech News* readers and Aerospace Section members!

The sands of time are running out for 2015. Soon I will be put out to "pasture" [a vivid eggcorn for "past chair"]. At the time of this writing (late October), our current past-chair, Edna Paulson, is seeking a chair-elect for 2016 who will become chair in 2017 (Phoenix). Please consider volunteering as this is a great opportunity to gain leadership experience, to learn more about the association, and to enrich your professional network. We need your leadership and interest to keep the Aerospace Section a vital part of the Engineering Division!

We are in great shape for 2016, though, as our current "chair-elect" will become the Aerospace Chair in January 2016. Her name is Gabriele Hysong, and she is an Information Operative at the Rolls-Royce Library and Knowledge Services Center in Indianapolis, Indiana. At SLA 2015, she was a speaker at the Solo Division's program entitled: "If you pin it, bake it, caffeinate it, or craft it -- they will come: solo success stories." I am certain she will be an inspirational leader for the Aerospace Section and I wish her great success in the coming years. I look forward to continuing to work with her in my role as past chair in 2016.

With that segue, I note that I will be on hand to perform the duties assigned to me as past-chair and I will continue to attend the Engineering Division board monthly meetings. I hope to see you in Philadelphia in June!

Briefly looking at 2015, the Aerospace Section sponsored a well-attended program at the SLA annual conference. For me, the NASA Spinoff session was a highlight of the conference. I still have the shiny book on my living room table and I browse through it and read snippets to my family with the refrain: "Isn't this amazing?" In addition, I worked on "reviving" the Aero listserv by removing old email addresses, by inviting and encouraging Aerospace members to subscribe to it, and by sending out monthly "gleanings" postings.

Before I step off this main stage, I want to thank Sara Davis for her outstanding leadership of the Engineering Division. I am also grateful to Diane Brenes, our treasurer, for keeping the finances of the Aero Section in good shape. I want to convey my appreciation to Edna Paulson and Gabriele Hysong for their support and encouragement throughout the year. And to my fellow Aerospace Section members: thank you for supporting our association and for "being there" for networking opportunities: my own little world is better because of you.

Please give Gabriele your support so that her year of leadership will be successful. I know that Gabriele is at present planning an Aerospace program for the conference in Philadelphia. She will tell you more about it in the next *SciTech News*.

Warm regards,  
Mary Silva Whittaker  
SLA Aerospace Section Chair 2015



The abstracts in the following section are selected from protoview.com, a database of scholarly titles and abstracts available for subscription from Ringgold, Inc. For more information, please visit: <http://www.ringgold.com/protoview>.

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## GEOGRAPHY

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G70 9781608078127

### **Spectral-Spatial Classification of Hyperspectral Remote Sensing Images**

Jón Atli Benediktsson and Pedram Ghamisi (The Artech House Remote Sensing Series)

Artech House, ©2015 258 p. \$169.00

Benediktsson and Ghamisi explain how to integrate spatial and spectral information when classifying hyperspectral data from remote sensing of Earth's surface. The classification of hyperspectral data using both spatial and spectral information has been a quickly developing topic of research recently, and the availability of hyperspectral data with high spatial resolution has been quite important for classification techniques. After introducing hyperspectral imaging and high-dimensional data, they cover classification approaches, feature reduction, extracting spatial information using segmentation, the morphological profile, and attribute profiles.

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## SCIENCE (GENERAL)

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Q175 9781119052715

### **Repeated Measures Design for Empirical Researchers**

J.P. Verma

Wiley, ©2016 257 p. \$125.00

Verma helps empirical researchers in any area understand situations where repeated measure designs can be used and can provide a handy solution to analyzing them with the proprietary SPSS statistics software. He emphasizes the importance of this design in any experimental research, and discusses the most widely used repeated measure designs in empirical studies. His topics are foundations of experimental design, the analysis of variance and repeated measures design, testing assumptions in repeated measures design using SPSS, one-way repeated measures design, two-way repeated measures design, two-way mixed design, one-way repeated measures MANOVA, and mixed design with two-way MANOVA.

Q295 9781118954133

### **Modeling and Visualization of Complex Systems and Enterprises: Explorations of Physical, Human, Economic, and Social Phenomena**

William B. Rouse (Stevens Institute Series on Complex Systems and Enterprises)

Wiley, ©2015 279 p. \$120.00

For people in any field that where they must model complex systems, Rouse presents a guide that considers the interaction between different phenomena at different levels, rather than assigning each part to a different discipline to solve in isolation then fit together at the end. In addition to a chapter each on physical, human, economic, and social phenomena, he considers overall methodology, perspectives on phenomena, the visualization of phenomena, computational methods and tools, and perspectives on problem solving.

Q335 9789814566742

### **Principles of Quantum Artificial Intelligence**

**Andreas Wichert**

World Scientific, ©2014 262 p. \$98.00

Looking at how the overlap of artificial intelligence and quantum computation creates the subspecialty of quantum artificial intelligence, Wichert introduces the basic principles of classical computation, representation, and problem solving then turns to the principles of quantum computation and their relation to the core ideas of artificial intelligence such as search and problem solving. Among the topics are information, reversible algorithms, probability, computation with qubits, periodicity, quantum cognition, and related approaches.

Q337 9781466682917

### **Handbook of Research on Swarm Intelligence in Engineering**

Edited by Siddhartha Bhattacharyya and Paramartha Dutta (Advances in Computational Intelligence and Robotics (ACIR))

Engineering Science Reference, ©2015 743 p. \$335.00

Researchers in computational intelligence report the current status of swarm intelligence and its use in engineering problems at a level accessible to graduate students and researchers. The topics include quantum behaved swarm intelligent



techniques for image analysis, swarm-based mean-variance mapping optimization for solving non-convex economic dispatch problems, image enhancement techniques using a particle swarm optimization technique, the particle swarm optimization method for designing a linear tubular switched reluctance generators, and a strategy for deploying uniformly distributed mobile sensor nodes using swarm intelligence.

Q342 9781466694262

### **Improving Information Security Practices Through Computational Intelligence**

Edited by Wasan Shaker Awad, El Sayed M. El-Alfy, and Yousif Al-Bastaki (Advances in Information Security, Privacy, and Ethics)

Information Science Reference, ©2016 327 p. \$210.00

Editors Awad, El-Alfy, and Al-Bastaki present students, academics, researchers, and professionals working in a variety of contexts with a collection of academic papers and scholarly articles focused on the enhancement of information security through computational intelligence. The editors have organized the ten contributions that make up the main body of the text in five parts devoted to applications of evolutionary computation in cryptology, intelligent intrusion detection, authentication, multimedia security, and a wide variety of other related subjects. Wasan Shaker Awad is a faculty member of Ahlia University, Bahrain. El Sayed M. El-Alfy is a faculty member of King Fahd University of Petroleum and Minerals, Saudi Arabia. Yousif Al-Bastaki is a faculty member of the University of Bahrain.

Q387 9781614994374

### **Formal Ontology in Information Systems; proceedings**

International Conference Formal Ontology in Information Systems (8th: 2014: Rio de Janeiro, Brazil) Edited by Pawel Garbacz and Oliver Kutz (Frontiers in Artificial Intelligence and Applications; Volume 267)

IOS Press, ©2014 436 p. \$176.00 (pa)

This volume consists of the proceedings of the Eighth International Conference Formal Ontology in Information Systems (FOIS 2014), held in Rio de Janeiro, Brazil, in September 2014. The 38 papers address foundations; processes, agency, and dispositions; methods and tools used in ontology development; and applications in biology and medicine, engineering, and the economy. Short papers from the ontology competition are included. Contributors work in technology and other fields around the world.

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## **MATH, COMPUTERS**

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QA76 9781439816615

### **Simple Statistical Methods for Software Engineering: Data and Patterns**

C. Ravindranath Pandian and Murali Kumar S K  
CRC Press, ©2015 364 p. \$99.95

Pandian and Kumar present students, academics, researchers, and professionals working in a wide variety of contexts with a comprehensive examination of the theory and practice of applying statistical methods to the field of software engineering. The authors have organized the twenty-one chapters that make up their main body of the text in four parts devoted to data, metrics, the laws of probability, and tailed distributions. Ravindranath Pandian C. is an innovation, quality, and project management consultant. Murali Kumar S K is a business consultant.

QA247 9781482240139

### **A Practical Guide to Geometric Regulation for Distributed Parameter Systems**

Eugenio Aulisa and David Gilliam (Monographs and Research Notes in Mathematics)  
CRC Press, ©2015 274 p. \$89.95

This guide introduces geometric control design methodologies for asymptotic tracking and disturbance rejection of infinite-dimensional systems governed by partial differential equations, focusing on the state feedback regulator problem, in which the controller is provided with full information on the state of the control system and exosystem. It covers linear and nonlinear examples and the case of bounded and unbounded actuators and sensors. The first part describes regulation for linear systems, including regulation for bounded input and output operators, linear regulation with unbounded control and sensing, and examples of regulation for linear distributed parameter systems with unbounded inputs and outputs, followed by coverage of regulation for nonlinear systems, and theoretical results and applications to examples such as Navier-Stokes flow, 2D Burgers' and Chafee-Infante equations, and a vibrating nonlinear beam. The book does not address the error feedback regulator problem.

QA269 9781498712392

### **Adversarial Risk Analysis**

David L. Banks, Jesus Rios, and David Ríos Insua  
CRC Press, ©2016 214 p. \$89.95

Authors Banks, Rios, and Insua present students, academics, researchers, and professionals working in a wide variety of contexts with an exami-

nation of the construction of Bayesian models for the strategic analysis of rival or oppositional forces. The authors have organized the main body of their text in seven chapters devoted to games and decisions, simultaneous games, auctions, and a wide variety of other related subjects. David L. Banks is a faculty member of Duke University, North Carolina. Jesus Rios is with the IBM Thomas J. Watson Research Center, New York. David Ríos Insua is a faculty member of the Institute of Mathematical Sciences, Spain.

QA274 9789814678582

**Change of Time and Change of Measure, 2nd Edition**

Ole E. Barndorff-Nielsen and Albert Shiryaev (Advanced Series on Statistical Science and Applied Probability; Volume 21)

World Scientific, ©2015 326 p. \$68.00

Barndorff-Nielsen and Shiryaev focus on change of time and change of measure as two methods for getting “simple” representations in probability theory and the theory of stochastic processes. They also consider another method of representation of the processes based on stochastic integrals with respect to some “simple” processes, which is an intermediate step for getting the change of time representation for the “complicated” processes. Among their topics are integral representations and change of time in stochastic integrals, stochastic exponential and stochastic logarithm, general facts about change of measure, change of time in semimartingale models and models based on Brownian motion and Lévy processes, Martingale measures in the stochastic theory of arbitrage, and change of measure in option pricing. The second edition has a new chapter on ambit processes and fields and volatility/intermittency.

QA276 9781498716963

**Dynamic Documents With R and Knitr, 2nd Edition**

Yihui Xie (The R Series)

CRC Press, ©2015 266 p. \$69.95 (pa)

Author Yihui Xie presents students, academics, researchers, and professionals working in a wide variety of contexts with the second edition of his comprehensive examination of the theory and application of integrating computing directly into reporting documents directly related to data analysis, computing, or statistical graphics. The author has organized the main body of his text in sixteen chapters devoted to reproducible research, document formats, text output, graphics, language engines, and a wide variety of other related subjects. The author is currently employed

as a software engineer with RStudio in Iowa.

QA277 9781482242799

**Measuring Statistical Evidence Using Relative Belief**

Michael Evans (Monographs on Statistics and Applied Probability; 144)

CRC Press, ©2015 232 p. \$89.95

Neglecting to define how to measure evidence is a significant failure for any proposed theory of statistical inference, declares Evans. He summarizes recent research on developing a theory of statistical inference that is based on measuring statistical evidence, and shows how being explicit about how to measure statistical evidence addresses the basic question of when a statistical analysis is correct. His topics are statistical problems, probability, characterizing statistical evidence, measuring statistical evidence using relative belief, and choosing and checking the model and prior.

QA279 9781466504332

**Handbook of Design and Analysis of Experiments**

Edited by Angela Dean, Max Morris, John Stufken, and Derek Bingham (Chapman & Hall/CRC Handbooks of Modern Statistical Methods)

CRC Press, ©2015 940 p. \$119.95

A broad reference to the current theory, methodology, and application of designed statistical experiments and their analysis, the self-contained and cross-referenced chapters cover general principles, designs for linear models, designs accommodating multiple factors, optimal design for nonlinear and spatial models, computer experiments, cross-cutting issues, and design for contemporary applications. Among specific topics are response surface experiments and designs, non-regular factorial and supersaturated designs, the algebraic method in experimental design, Latin hypercubes and space-filling designs, and plate designs in high-throughput screening experiments for drug discovery.

QA280 9781584886501

**Models for Dependent Time Series**

Granville Tunnicliffe Wilson, Macro Reale, and John Haywood (Monographs on Statistics and Applied Probability; 142)

CRC Press, ©2016 323 p. \$89.95

Authors Wilson, Reale, and Haywood present students, academics, researchers, and professionals working in a wide variety of contexts with an examination of issues arising when the dependence between time series is described and modeled and the methodology that can be applied

to the situation. The authors have organized the main body of their text in nine chapters devoted to lagged regression and autoregressive models, spectral analysis of dependent series, the estimation of vector autoregressions, and a wide variety of other related subjects. Granville Tunnicliffe Wilson is a faculty member of Lancaster University in the UK. Marco Reale is a faculty member of the University of Canterbury, New Zealand. John Haywood is a faculty member of Victoria University of Wellington, New Zealand.

QA295 9781482237610

**Dictionary of Inequalities, 2nd Edition**

Peter Bullen (Monographs and Research Notes in Mathematics Series)

CRC Press, ©2015 374 p. \$99.95

Aiming to provide an easy way for researchers to locate an inequality either by name or by subject, Bullen presents this new, revised second edition, which provides new results over the last fifteen years. He has included URLs for important references as well as a list of useful URLs. Inequalities are organized alphabetically and provide comments and references throughout. Elementary geometric inequalities are eliminated for the most part. Twenty-three alphabetical sections begin with: Abel; Backward; Cakalov; Davies; Efron; Factorial; Gabriel; Haber; Incomplete; Jackson; Kaczmarz; Labelle; Mahajan; Nanjundiah; Operator; Pachpatte; Q-class; Rademacher; Safari; Talenti; Ultraspherical; Wagner; Yao.

QA299 9781470421984

**Winding Around: The Winding Number in Topology, Geometry, and Analysis**

John Roe (Student Mathematical Library; Volume 76)

American Mathematical Society, ©2015 269 p. \$49.00 (pa)

Based on lecture notes for advanced undergraduate topics courses taught at Penn State's Mathematics Advanced Study Semesters program in the fall of 2013, this book explains the winding number in topology, geometry, and analysis. It covers paths and homotopies, the topology of the plane, integrals and the winding number, vector fields and the rotation number, the winding number in functional analysis, coverings and the fundamental group, and the Bott periodicity theorem.

QA322 9781611973853

**Active Subspaces: Emerging Ideas for Dimension Reduction in Parameter Studies**

Paul G. Constantine (SIAM Spotlights; 2)

SIAM, ©2015 100 p. \$39.00 (pa)

This book for graduate students and researchers in engineering, computational science, applied mathematics, and statistics explains methods for solving problems in high-dimensional parameter studies, especially in parameterized models for physics and engineering applications. The book focuses on computing and using the active subspace, which is a dimension reduction tool for use in parameter space. Techniques are presented for using a model's active subspace, for improving parameter studies, and for dimension reduction. Three cases are provided: a scramjet, a photovoltaic solar cell, and a method for airfoil shape optimization. Many b&w graphs are included.

QA323 9781470416942

**Function Spaces in Analysis; proceedings Conference on Function Spaces (7th: 2014: Edwardsville, Illinois)**

Edited by Krzysztof Jarosz (Contemporary Mathematics; Volume 645) American Mathematical Society, ©2015 301 p. \$105.00 (pa)

The conference draws mathematicians interested in various problems within the general area of function spaces; they tend to direct their lectures to non-specialist mathematicians. The 24 papers here consider such topics as characterizing holomorphic and meromorphic functions using maximum principles, generalizing trigonometric functions from different points of view, amenability as a hereditary property in some algebras of vector-valued functions, weighted composition operators on weighted sequence spaces, and the essential norm of operators on the Bergman space of vector-valued functions on the unit ball.

QA329 9781118855287

**Non-Selfadjoint Operators in Quantum Physics: Mathematical Aspects**

Edited by Fabio Bagarello, Jean Pierre Gazeau, Franciszek Hugon Szafraniec, and Miloslav Znojil Wiley, ©2015 407 p. \$125.00

Quantum mechanics influences a variety of different mathematical constructions. This book brings together top researchers to discuss the emerging role of mathematical methods to inform the development of quantum physics. Specific topics covered include the emergence of unboundedness of metric operators, functional analytic and algebraic methods for non-selfadjoint operators and the use of Krein space theory. This book will serve as the ideal reference for researchers, professors, and academics in applied mathematics.

QA353 9781119019329

**Data-Variant Kernel Analysis**

Yuichi Motai (Wiley Series on Adaptive and Cog-

nitive Dynamic Systems)

Wiley, ©2015 217 p. \$130.00

Author Yuichi Motai presents students, academics, researchers, and professionals working in a wide variety of contexts, with an examination of the contemporary theory and application of kernel analysis for analysis. The author has organized the main body of his text in seven chapters devoted to a survey of kernel analysis, offline kernel analysis, group kernel feature analysis, online kernel analysis, cloud kernel analysis, and a wide variety of other related subjects. The author is a faculty member of Virginia Commonwealth University.

QA401 9781118853986

**Mathematical and Computational Modeling: With Applications in Natural and Social Sciences, Engineering, and the Arts**

Edited by Roderick Melnik (Pure and Applied Mathematics)

Wiley, ©2015 314 p. \$99.95

This book collects essays written by a number of scholars discussing and showing the findings of mathematical computational modeling as it relates to other disciplines such as the life sciences, social science and even the arts. Essay titles include, A Model for the Spread of Tuberculosis with Drug-Sensitive and Emerging Multidrug-Resistant and Extensively Drug-Resistant Strains, On Smoothness Concepts in Regularization for Nonlinear Inverse Problems in Banach Spaces, Satisfaction Approval Voting, and Modeling Musical Rhythm Mutations with Geometric Quantization.

QA402 9781498721127

**Optimization: Algorithms and Applications**

Rajesh Kumar Arora

CRC Press, ©2015 450 p. \$129.95

Arora, an aerospace engineer, describes both gradient and stochastic solution techniques for unconstrained and constrained optimization problems, with an emphasis on concepts and mathematical details rather than proofs. He uses a step-by-step approach to develop the software code from the algorithm (using MATLAB), which is then applied to solve standard functions from the literature and modified to solve real-world problems. He addresses 1-D algorithms, the conjugate gradient method, the Broyden-Fletcher-Goldfarb-Shanno algorithm, the Powell method, the penalty function, the augmented Lagrange multiplier method, sequential quadratic programming, the method of feasible directions, genetic algorithms, particle swarm optimization, simulated annealing, ant colony optimization, and tabu

search methods, as well as multiobjective optimization problems, the simplex method and affine-scaling interior point method for solving linear programming problems, dynamic programming, and Gomory's cutting plane method, branch-and-bound method, and Balas' algorithm for integer programming. Applications include solving a complex trajectory design problem of a robot, multiobjective shape optimization problem of a reentry body, and portfolio optimization problem.

QA565 9783110317886

**Algebraic Curves and Finite Fields: Cryptography and Other Applications**

Edited by Harald Niederreiter, Alina Ostafe, Daniel Panario, and Arne Winterhof (Radon Series on Computational and Applied Mathematics; Volume 16)

De Gruyter, ©2014 240 p. \$182.00

Ten survey articles reflect invited lectures at the workshops Algebraic Curves Over Finite Fields, held in November 2013, and Emerging Applications of Finite Fields, held in December 2013. They present some new developments, and stimulate both the interaction between different application areas and the continuous quest for new applications. The topics include generic Newton polygons for curves of given p-rank, the discrete logarithm problem with auxiliary inputs, a garden of curves with many automorphisms, permutations of finite fields and uniform distribution modulo 1, and an analog of the Kronecker-Weger theorem in positive characteristic.

QA567 9781470414078

**Period Functions for Maass Wave Forms and Cohomology**

R. Bruggeman, J. Lewis, and D. Zagier (Memoirs of the American Mathematical Society; Volume 237, Number 1118)

American Mathematical Society, ©2015 132 p. \$81.00 (pa)

Authors Bruggeman, Lewis, and Zagier present students, academics, researchers, and professional mathematicians working in a wide variety of contexts with an examination of mixed parabolic cohomology groups and semi-analytic vectors in principal series representation. The authors have organized the main body of their text in six chapters devoted to Eigenfunctions of the hyperbolic Laplace operator, Maass forms and analytic cohomology for cocompact groups, cohomology of infinite cycle subgroups, Maass forms and semi-analytic cohomology of groups with cusps, and a wide variety of other related subjects.



QA614 9784864970266

**Singularities in Geometry and Topology 2011; proceedings**

Franco-Japanese Symposium on Singularities (6th: 2011: Fukuoka, Japan) Edited by Vincent Blanleil and Osamu Saeki (Advanced Studies in Pure Mathematics; Volume 66)

Mathematical Society of Japan, ©2015 282 p. \$65.00

The proceedings begin with two survey articles that discuss smooth double sub-varieties on singular varieties, and apparent contours of stable maps between surfaces. Then 12 research papers report on such matters as the Alexander module of a trigonal curve, fibered links of singularities of polar weighted homogeneous mixed polynomials, classes in the classification of curves on rational surfaces with respect to logarithmic plurigenera, computing algebraic local cohomology classes associated with semi-quasihomogeneous singularities, some geometric-arithmetic aspects of separated variable curves, and mirror symmetry between orbifold projective lines and cusp singularities.

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**PHYSICS**

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QC52 9781938549984

**Multiphysics Modeling: Using COMSOL 5 and MATLAB (DVD included)**

Roger W. Pryor

Mercury Learning and Information, ©2016 594 p. \$99.95

Pryor introduces hands-on model building and solving with COMSOL Multiphysics software version five to scientists, engineers, and others interested in exploring the behavior of physical device structures built on a computer before going to the workshop or laboratory and trying to build it, that is to create a virtual prototype before creating a physical prototype. His topics include materials properties, one-dimensional modeling, two-dimensional axisymmetric modeling, two-dimensional simple and complex mixed mode modeling, perfectly matched layer models, and bioheat models. Distributed in North America by Stylus Publishing and Distribution.

QC88 9789814678612

**Advanced Mathematical and Computational Tools in Metrology and Testing X**

Edited by F. Pavese, W. Bremser, A. Chunovkina, N. Fischer, and A.B. Forbes (Series on Advances in Mathematics for Applied Sciences; Volume 86) World Scientific, ©2015 429 p. \$150.00 From a September 2014 international confer-

ence in St. Petersburg, Russia, 50 papers explore mathematical, statistical, and numerical tools and techniques in metrology and testing. Their topics include a model for emotion measurements in acoustic signals and its analysis, a new approach for the mathematical alignment of machine tool-paths on a five-axis machine and its effect of surface roughness, the influence of test equipment instability and calibration methods on the measurement uncertainty of the test laboratory, methodological aspects of stopping iterative procedures in inverse problems for static-mode measurement, and a Bayesian approach to improving the uncertainty of model-based measurements in hybrid multi-tool metrology.

QC168 9781118821893

**High Enthalpy Gas Dynamics**

Ethirajan Rathakrishnan

Wiley, ©2015 330 p. \$149.95

Aerospace engineer Rathakrishnan presents an introductory graduate textbook on high-enthalpy gas dynamics for students who are well versed in the gas dynamics of perfect gases. He reviews the relevant quantum mechanics and thermodynamics when necessary. The book provides details on some of the practical aspects of high-enthalpy flows where the flow becomes chemically reactive, such as shocks, nozzle flow, and transport properties. A chapter on high-enthalpy facilities, introduces the experimental devices meant for generating high-speed and high-temperature flows.

QC176 9789814663335

**Is Hopping a Science? Selected Topics of Hopping Conductivity**

Issai Shlimak

World Scientific, ©2015 139 p. \$58.00

Shlimak explores various aspects of hopping conductivity, a mechanism for charge transport for localized electrons. He covers critical indices of the metal-insulator transition, different types of hopping conductivity including nearest-neighbor hopping and variable-range hopping with and without the existence of a soft Coulomb gap at the Fermi level, hopping spectroscopy, nontrivial effects such as negative magneto-resistance and electron-electron interaction-assisted hopping, 1/f noise and electronic devices based on hopping conduction, and inter-impurity radiative recombination and hopping photoconductivity.

QC482 9781908979629

**Strain and Dislocation Gradients From Diffraction: Spatially-Resolved Local Structure and Defects**



Edited by Rozaliya Barabash and Gene Ice  
Imperial College Press, ©2014 463 p.  
\$158.00

Scientists and engineers in the physical sciences describe diffraction studies of mesoscale strain gradients and dislocation distributions in crystals, which lie at the heart of emerging research programs around the world. While diffraction techniques to study materials at the nanoscale and macroscale are mature, the mesoscale (0.01-10) remains elusive both for experimental characterization and for theoretical modeling. The topics include X-ray Laue diffraction microscopy in three dimensions at the advanced proton source, three-dimensional X-ray diffraction microscopy, reconstructing two-dimensional and three-dimensional X-ray orientation maps from white-beam Laue, energy-variable X-ray diffraction, and high-pressure studies with micro-diffraction. Distributed in the US by World Scientific.

QC611 9781119978817

### **Physical Properties of High-Temperature Superconductors**

Rainer Wesche (Wiley Series in Materials for Electronic and Optoelectronic Applications)  
Wiley, ©2015 513 p. \$200.00

This work provides an interdisciplinary overview of the physical properties of cuprate- and iron-based high-temperature superconductors; there is also some material on the intermediate-temperature superconductor called magnesium diboride. In addition to physical properties, the book covers synthesis of these materials, the manufacture of superconducting wires and tapes, and the deposition of superconducting films. The book can be used for a graduate course on superconducting films.

QC762 9781849738897

### **Hyperpolarized Xenon-129 Magnetic Resonance: Concepts, Production, Techniques, and Applications**

Edited by Thomas Meersmann and Eike Brunner (New Developments in NMR, 4)  
Royal Society of Chemistry, ©2015 484 p.  
\$300.00

Chemists summarize their own research and related research regarding hyperpolarized <sup>129</sup>xenon nuclear magnetic resonance. Among their topics are the xenon chemical shift and chemical shift anisotropy, principles and practices of spin-exchange optical pumping at high xenon densities and laser fluxes, biosensing and the study of biological cells using hyperpolarized <sup>129</sup>xenon, continuous flow and dissolved phase <sup>129</sup>xenon nuclear magnetic resonance/magnetic resonance

imaging for quantifying in preclinical study as well as materials science, and hyperpolarized xenon nuclear magnetic resonance/magnetic resonance imaging signal amplification by gas extraction and remote detection. Distributed in the US by Ingram Publisher Services.

QC765 9781782620310

### **Magnetic Resonance in Food Science: Defining Food by Magnetic Resonance**

Edited by Francesco Capozzi, Luca Laghi, and Peter S. Belton (Special Publication; 349)  
Royal Society of Chemistry, ©2015 224 p.  
\$192.00

Editors Capozzi, Laghi, and Belton present students, academics, researchers, and professionals working in a wide variety of contexts with a collection of academic papers and scholarly articles focused on the contemporary use of magnetic resonance in research in the understanding of food systems. The editors have organized the contributions that make up the main body of the text in six parts devoted to quantitative NMR, quality and safety, on-line non-invasive NMR, and a wide variety of other related subjects. Francesco Capozzi and Luca Laghi are faculty members of the University of Bologna, Italy. Peter S. Belton is a faculty member of the University of East Anglia in the UK. Distributed in the US by Ingram Publisher Services.

QC786 9781498727273

### **Fractional Calculus With Applications for Nuclear Reactor Dynamics**

Santanu Saha Ray  
CRC Press, ©2016 201 p. \$179.95

Author Santanu Saha Ray presents students and academics, researchers, and professionals working in a wide variety of contexts with an examination of the applications for fractional calculus in nuclear reactor dynamics. The author has organized the main body of his text in eight chapters devoted to mathematical methods in nuclear reactor physics, neutron diffusion equation models in dynamical systems, fractional order neutron point kinetic models, and a wide variety of other related subjects. The author is a faculty member of the National Institute of Technology Rourkela, India.

QC794 9789814678698

### **From Atomic to Mesoscale: The Role of Quantum Coherence in Systems of Various Complexities**

Edited by Svetlana A. Malinovskaya and Irina Novikova  
World Scientific, ©2015 262 p. \$88.00

Physicists and other researchers explore recent developments and project future directions in atomic, molecular, and optical physics and their role in modern sciences and technologies. They look at a wide range of quantum systems, emphasizing an understanding of quantum coherence and other quantum phenomena emerging from interaction between light and matter. Their themes are collective phenomena and long-range interactions in ultracold atoms and molecules, atom-like coherent solid state systems, coherent nanophotonics and plasmonics, fundamental physics, ultrafast dynamics in strong laser fields, and ultracold chemistry.

QC861 9781118855935

**Modeling Atmospheric and Oceanic Flows: Insights from Laboratory Experiments and Numerical Simulations**

Edited by Thomas von Larcher and Paul D. Williams (Geophysical Monograph Series; 205)  
American Geophysical Union, ©2015 353 p.  
\$149.95

Von Larcher and Williams cite the fact that, while great progress in understanding geophysical fluid dynamics has been made, it remains a challenging and intriguing task due to the complex physical mechanisms at play and the wide range of scales in space and time. They and their international contributors provide a comprehensive survey of some of the laboratory experiments and numerical simulations that are being performed to improve our understanding of atmospheric and oceanic fluid motion. Seventeen chapters are divided into five sections: baroclinic-driven flows; balanced and unbalanced flows; atmospheric flows; oceanic flows; advances in methodology.

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**CHEMISTRY**

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QD262 9781118672716

**Stereoselective Multiple Bond-Forming Transformations in Organic Synthesis**

Edited by Jean Rodriguez and Damien Bonne  
Wiley, ©2015 449 p. \$150.00

This is a collection of research papers concerning stereoselective multiple bond-forming transformations (MBFTs) with a focus on reducing the amount of waste, time, and effort during chemical processing. The book is divided into five parts, each focusing on a different mode of MBFT. The parts are Stereoselective Synthesis of Heterocycles, Stereoselective Synthesis of Carbocycles, Stereoselective Synthesis of Spirocyclic Compounds, Stereoselective Synthesis of Acyclic Compounds, and Multiple Bond-Forming Trans-

formations: Synthetic Applications. Each chapter contains a conclusion and a list of references as well as appropriate charts and graphs.

QD381 9783038355472

**Functional Properties of Modern Materials; select papers**

International Conference on Functional Materials Science (ICFMS 2014)(2nd: 2014: Lombok, Indonesia) Edited by Risdiana, Kuwat Triyana, and Agustinus Agung Nugroho (Materials Science Forum; Volume 827)

Trans Tech Publications, ©2015 383 p.  
\$140.00 (pa)

Editors Risdiana, Triyana, and Nugroho present students, academics, researchers, and professionals working in wide variety of contexts with a collection of peer-reviewed papers selected from research presented at the second International Conference on Functional Materials Science held in November of 2014 in Indonesia. The editors have organized the contributions that make up the main body of the text in seven chapters devoted to materials in environmental engineering, materials in biomedical engineering, materials for devices of conversion and storage of energy, and a wide variety of other related subjects.

QD382 9781849737999

**Conjugated Polymers: A Practical Guide to Synthesis**

Edited by Klaus Müllen, John R. Reynolds, and Toshio Masuda (RSC Polymer Chemistry Series; 9)

Royal Society of Chemistry, ©2014 480 p.  
\$260.00

Editors Müllen, Reynolds, and Masuda present students, academics, researchers, and professionals working in a variety of contexts with a collection of academic papers and scholarly articles focused on the practical preparation of a variety of conjugated polymers. The twenty contributions that make up the main body of the text are devoted to pi-conjugate polymers and the importance of polymer synthesis, polyacetylenes, substituted polyacetylenes, and a wide variety of other related subjects. Klaus Müllen is a faculty member of the Max Planck Institute, Germany. John R. Reynolds is a faculty member of the Georgia Institute of Technology. Toshio Masuda is a faculty member of Fukui University of Technology, Germany. Distributed in the US by Ingram Publisher Services.

QD453 9781118495667

**Quantum Information and Computation for Chemistry**

Edited by Sabre Kais (Advances in Chemical Physics; Volume 154)

Wiley, ©2014 655 p. \$200.95

Researchers in the quantum information science community describe topics in quantum computation and quantum information related to or overlapping with key topics in chemical physics. Their topics include a quantum computing approach to non-relativistic and relativistic molecular energy calculations, quantum algorithms for continuous problems and their applications, few-qubit magnetic resonance quantum information processors to simulate chemistry and physics, vibrational energy transfer through molecular chains as an approach toward scalable information processing, and the dynamics of entanglement in one-dimensional and two-dimensional spin systems.

QD501 9781849736503

**Reaction Rate Constant Computations: Theories and Applications**

Edited by Keli Han and Tianshu Chu (RSC Theoretical and Computational Chemistry Series; 6) Royal Society of Chemistry, ©2014 572 p. \$260.00

Editors Han and Chu present students, academics, researchers, and professionals working in a wide variety of contexts with a collection of academic papers and scholarly articles focused on contemporary theories and applications for modern rate computational theory. The twenty-one contributions that make up the main body of the text are devoted to rate constants and their temperature-dependence in elementary reactions, rate constant calculation of benzylperoxy radical isomerization, statisticodynamical and multiscale modeling of cluster dissociation, and a wide variety of other related subjects. The editors are both faculty members of the Dalian Institute of Chemical Physics, China. Distributed in the U.S. by Ingram Publisher Services. Distributed in the US by Ingram Publisher Services.

QD506 9781118834190

**Ionic Liquid-Based Surfactant Science: Formulation, Characterization, and Applications**

Edited by Bidyut K. Paul and Satya P. Moulik (Wiley Series on Surface and Interfacial Chemistry) Wiley, ©2015 546 p. \$175.00

Chemists and chemical engineers explore a class of non-aqueous liquids that, by combining different cations and anions are very flexible in their properties and could be considered designer solvents. Their topics include the self-assembly of non-ionic surfactants in room-temperature ionic

liquids, fluorescence studies of the micro-environments of the morpholinium room-temperature ionic liquids, ionic liquids in soft confinement: the effect of reverse micelle interfaces on the entrapped ionic liquid structure, recent developments in bio-ionic liquids and bio-compatible microemulsions based on ionic liquids, and deep eutectic solvents as a new reaction medium for biotransformations.

QD516 9783527331789

**Propellants and Explosives: Thermochemical Aspects of Combustion, 3rd Edition**

Naminosuke Kubota

Wiley-VCH, ©2015 534 p. \$215.00

The third edition of this textbook on rocketry and explosives technology has been fully revised and updated. A new topic, green or environmentally safer propellants, has been included. The book covers materials, their characteristics, safe handling, and applications. The first half is an introductory textbook on pyrodynamics, and covers the physics and chemistry of combustion of materials that burn without needing an external supply of oxygen. The book's second half focuses on the applications of these materials: how to handle their special risks and the advantages they provide. Rocket engines are the main focus, but other applications are also considered. It is designed for students and professionals in engineering and related fields.

QD850 9781782621706

**Mechanochemistry: From Functional Solids to Single Molecules**

Edited by Robert Eagling (Faraday Discussions Series; Volume 170)

Royal Society of Chemistry, ©2014 429 p. \$270.00

Editor Robert Eagling presents students, academics, researchers, and professionals working in a wide variety of contexts with a collection of academic papers and scholarly articles focused on contemporary research into the theory and application of mechanochemistry in a variety of contexts. The contributions that make up the main body of the text are devoted to the two-step mechanochemical synthesis of porphyrins, the mechanochemistry of organic molecules, soft materials, and pharmaceuticals, the mechanochemical preparation of copper iodide clusters of interest for luminescent devices, and a wide variety of other related subjects. Robert Eagling is the Executive Editor of the Faraday Division of the Royal Society of Chemistry, UK. Distributed in the U.S. by Ingram Publisher Services.

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## TECHNOLOGY (GENERAL)

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T59 9783038356110

### **Materials, Industrial, and Manufacturing Engineering Research Advances 2; select papers**

International Materials, Industrial, and Manufacturing Engineering Conference (2nd: Bali, Indonesia) Edited by Denni Kurniawan and Fethma M. Nor (Advanced Materials Research; Volume 1125)

Trans Tech Publications, ©2015 658 p.  
\$280.00 (pa)

While focusing on materials engineering, industrial engineering, and manufacturing engineering, the conference also accepted papers on related fields or of an interdisciplinary nature because of the complexity and multidisciplinary nature of engineering problems. The 134 papers cover material engineering, chemical technologies, and materials processing; materials and technologies in environmental engineering, biological production, and green production; materials and technologies in construction; materials and technologies for biomedical application; technological equipment and machines; and industrial engineering.

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## ENGINEERING (GENERAL, CIVIL)

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TA148 9780393239874

### **Applied Minds: How Engineers Think**

Guruprasad Madhavan

W.W. Norton, ©2015 253 p. \$26.95

Author Madhavan is a biomedical engineer and policy adviser affiliated with the National Academy of Sciences and the World Economic Forum. Here, he borrows from the engineering mindset to provide strategies that can be applied to problems in many areas. The author presents a paradigm he calls modular systems thinking, composed of priorities from the engineer's brain such as optimizing, enhancing efficiency and reliability, standardizing with flexibility, solutions under constraints, and prototyping. Cases show how strategies from engineering design can be used to solve other problems in everyday life.

TA168 9781118271865

### **Contemporary Issues in Systems Science and Engineering**

Edited by MengChu Zhou, Han-Xiong Li, and Margo Weijnen (IEEE Press Series on Systems Science and Engineering)

IEEE/Wiley, ©2015 850 p. \$149.95

This text offers scholarly essays and research on the study of systems science and engineering. It assumes a high level of familiarity with the topic. The material is divided into five large sections --Systems Science and Engineering Methodologies; Learning and Control; Human-Machine Systems Design; and Sensing, Networking, and Optimization in Robotics and Manufacturing. Sample research titles include, Advances in Climbing Robots, Adaptive Classifiers for Nonstationary Environments, and Systemic Yoyos: An Institution and Playground for General Systems Research. All research papers include a conclusion and list of references.

TA174 9781118492123

### **Multidisciplinary Design Optimization Supported by Knowledge Based Engineering**

Jaroslav Sobieszczanski-Sobieski, Alan Morris, Michel J.L. van Tooren, Gianfranco La Rocca, and Wen Yao

Wiley, ©2015 370 p. \$135.00

Design engineers describe two technologies that have emerged to help coordinate the work of huge design teams working on a single project. Their primary focus is multidisciplinary design optimization, which has developed during the past three decades from the optimization of structures, possibly in combination with aerodynamics. Their topics include constrained design space search, direct search methods for locating the optimum of a design problem with a single-objective function, optimizing multi-objective function problems, multidisciplinary design optimization architectures, and uncertainty-based multidisciplinary design optimization.

TA330 9781498706285

### **A Sampler of Useful Computational Tools for Applied Geometry, Computer Graphics, and Image Processing**

Edited by Daniel Cohen-Or, Chen Greif, Tao Ju, Niloy J. Mitra, Ariel Shamir, Olga Sorkine-Hornung, and Hao (Richard) Zhang

CRC Press, ©2015 230 p. \$69.95

This volume provides mathematical tools useful in computer graphics, image processing, computer vision, digital geometry processing, and geometry in general. The tools are presented as solutions to specific applied problems like image alignment, surface approximation, compression, or image manipulation, and consist of analytical geometry, linear algebra, singular value decomposition (SVD), least-squares solutions, principal component analysis (PCA), spectral transforms, linear system solvers, Laplace and Poisson equations, differential geometry and curvature esti-



mates, dimensionality reduction, scattered data interpolation, radial basis functions, topology, graphs and images, and number theory and skewing schemes.

TA345 9781466688230

**Handbook of Research on Computational Simulation and Modeling in Engineering**

Edited by Francisco Miranda and Carlos Abreu (Advances in Systems Analysis, Software Engineering, and High Performance Computing) Engineering Science Reference, ©2016 824 p. \$420.00

Editors Miranda and Abreu present students, academics, researchers, and professionals working in a wide variety of contexts with a collection of academic papers and scholarly articles focused on advanced engineering technologies including theoretical and computational models, algorithms, software programs, and prediction tools. The editors have organized the twenty-four contributions that make up the main body of the text in five parts devoted to intelligent systems and control engineering, software and computer engineering, civil and environmental engineering, and a wide variety of other related subjects. The editors are both faculty members of the Instituto Politécnico de Viana do Castelo, Portugal. Francisco Miranda is also a faculty member of the University of Aveiro.

TA404 9781771880879

**Multifunctional Materials and Modeling**

Edited by Mikhail A. Korepanov and Alexey M. Lipanov (Innovations in Chemical Physics and Mesoscopy) Apple Academic Press, ©2016 343 p. \$139.95

Editors Korepanov and Lipanov present students, academics, researchers, and professionals working in a wide variety of contexts with a collection of academic papers and scholarly articles focused on contemporary research in nanomaterials, mesoscopy, quantum chemistry, and chemical physics processes. The editors have organized the twenty-eight contributions that make up the main body of the text in two parts devoted to computational modeling and surface and interface investigations. Mikhail A. Korepanov and Alexey M. Lipanov are faculty members of the Russian Academy of Sciences. Distributed by CRC Press, a Taylor & Francis Group.

TA405 9783038355137

**Key Engineering Materials V; select papers**

International Conference on Key Engineering Materials (5th: 2015: Singapore) Edited by Haider

F. Abdul Amir, Alexander M. Korsunsky, and Maria Mucha (Advanced Materials Research; Volume 1119)

Trans Tech Publications, ©2015 870 p. \$280.00 (pa)

About 175 papers discuss nanoscale materials and technologies, polymeric and composite materials and their properties, rubber-based materials, surface engineering and technologies of coating, biological and ecological materials, metals and alloys and industrial chemical technologies, technologies of materials processing, materials and related technologies in construction, and physical properties of materials in mechanical engineering. Among the topics are a numerical study of adsorption enhancement by nanoparticle-scale inhibitor, reusing byproduct alumina composite powder from a hydrogen production process, electrospun cellulose acetate fiber containing rubber extract, a solid state welding process for aerospace components, and a numerical study on uni-axial compression failure in brittle material with a single flaw.

TA409 9783038355410

**Advances in Fracture and Damage Mechanics XIV; select papers**

International Conference on Fracture and Damage Mechanics (14th: 2015: Budva, Montenegro) Edited by Darko Bajic, Zdenko Tonkovic, and Ferri Aliabadi (Key Engineering Materials; Volume 665)

Trans Tech Publications, ©2016 295 p. \$210.00 (pa)

This volume provides papers presented at the 14th International Conference on Fracture and Damage Mechanics held in Montenegro, in 2015, which showcased the latest in computation, theoretical and experimental research on structural integrity and durability and fracture and damage mechanics. Over 70 papers cover a variety of subjects: fracture prediction; light alloy structural behavior in severe conditions; evaluation of bond strength; mixed-mode crack patterns; flexural property; fatigue resistance; inelastic dynamic seismic response; crack bridging modeling; role of residual stresses; influence of wedge shape in dynamic fracture toughness; Williams' stress function; energy dissipation; optimal sensory placement, inter alia.

TA410 9783038355106

**Engineering Research of Vehicles; select papers**

2 Day Symposium on Mechatronics Systems, Mechanics and Materials 2014/IV (2014: Wladyslawowo, Poland) Edited by Andrzej Grzadzila,



Bogdan Pojawa, and Piotr Szymak (Solid State Phenomena; Volume 236)

Trans Tech Publications, ©2015 270 p.  
\$140.00 (pa)

Part of the Solid State Phenomena series, this volume contains selected, peer reviewed papers from the two day Symposium on Mechatronics Systems, Mechanics and Materials held on November 19-20, 2014 in Wladyslawowo, Poland. The papers reflect the latest in theoretical and practical research from universities and research centers world wide. The book contains over 30 articles organized in four sections: Materials, Mechanisms and Energy of Technical Systems and Devices, Control and Robotics, Diagnostics of Equipment, and Environmental Protection Engineering.

TA413 9780803176133

**Evaluation of Existing and New Sensor Technologies for Fatigue, Fracture and Mechanical Testing**

Edited by Jidong Kang, David Jablonski, and David Dudzinski. (ASTM Selected Technical Papers; STP 1584)

ASTM International, ©2015 206 p. \$70.00 (pa)  
Editors Kang, Jablonski, and Dudzinski present students, academics, researchers, and professionals working in a wide variety of contexts with a collection of academic papers and scholarly articles selected from materials presented at a symposium held in May of 2104 in Toronto, Canada. The editors have organized the contributions that make up the main body of the text in four parts devoted to digital image correlation and its applications, crack length monitoring techniques, various sensors, and sensors for elevated temperature applications. Jidong Kang is an employee of Canmet MATERIALS, Canada. David Jablonski is an employee of Thermo Fisher Scientific, Massachusetts. David Dudzinski is an employee of Derivation Research Laboratory, Inc., Canada.

TA418 9783038355755

**Advances in Very High Cycle Fatigue; select papers**

International Conference on Very High cycle Fatigue (6th: 2014: Chengdu, China) Edited by Qingyuan Wang (Key Engineering Materials; Volume 664)

Trans Tech Publications, ©2016 340 p.  
\$140.00 (pa)

Participants from various engineering disciplines around the world exchange views and experiences regarding very high cycle fatigue, which concerns components going through well above 107 load cycles. They cover scientometric research,

advancements in instrumentation, advanced materials, the influence of environment and temperatures, the influence of small damage conditions, microstructure and initiation mechanisms, and life prediction and modeling. Among the topics are calculating thermal dissipation, the effects of stress concentration on fiber reinforced composites, estimating fatigue limit in interior inclusion induced fracture mode for bearing steel in rotating bending, failure mechanism of high strength steels, and the influence of high-cycle fatigue on crater wear characteristics of cemented carbide tool.

TA440 9781856176903

**Concrete Petrography: A Handbook of Investigative Techniques, 2nd Edition**

Alan B. Poole and Ian Sims

CRC Press, ©2016 794 p. \$199.95

Poole and Sims describe techniques for analyzing and evaluating concrete and other cementitious materials, providing professional petrographers both background information and details of some of the specialist techniques necessary for petrographic investigations. As in the first edition, they emphasize the value and importance of the polarizing microscope and related techniques. They cover petrographic equipment and methods; sampling and specimen preparation; the composition of concrete; the appearance and textures of cementitious materials; examining deteriorated and damaged concrete; pre-cast and special concretes; Portland cement mortar, screeds, renders, and special cements; and non-Portland cementitious materials, plasters, and mortars.

TA455 9781482253948

**Chemical Functionalization of Carbon Nanomaterials: Chemistry and Applications**

Edited by Vijay Kumar Thakur and Manju Kumari Thakur

CRC Press, ©2016 1077 p. \$199.95

Scientists and engineers in chemistry, materials, and other areas explore the chemical functionalization of carbon nanomaterials using different techniques, raise critical issues regarding them, and suggest directions for future research. Covering in turn structure and chemistry and materials and applications, they consider such topics as the synthesis and electronic properties of single-walled carbon nanotubes filled with inorganic compounds and metals, chemical functionalization as an approach for the creation of arrays of graphene quantum dots embedded in a dielectric matrix, functionalizing carbon nanotubes and graphene with amines and biopolymers containing amino groups, applying functionalized car-

bon-based nanomaterials in membrane separation, and electronic and optical properties of graphene nanosheets functionalized with boron and with nitrogen.

TA647 9781118825433

### **Advanced Modelling Techniques in Structural Design**

Feng Fu

Wiley-Blackwell, ©2015 258 p. \$125.00

In a textbook for graduate and advanced undergraduate engineering students and a reference for practicing engineers, Fu explains theories and modeling techniques for analyzing complex structures and addresses some special design problems such as vibration, fire, blast, and progression collapse. He shows how to work out the theories and techniques using popular commercial software, and demonstrates on a number of existing prestigious projects around the world, such as Buji Khalifa, Taipei 101, and the Millau Viaduct.

TA1632 9781118702468

### **Image, Video & 3D Data Registration: Medical, Satellite & Video Processing Applications With Quality Metrics**

Edited by Vasileios Argyriou, Jesús Martínez del Rincón, Barbara Villarini, and Alexis Roche  
Wiley, ©2015 231 p. \$120.00

Editors Argyriou, Martínez del Rincón, Villarini, and Roche present students, instructors, and professionals working in a wide variety of contexts with a collection of academic papers and scholarly articles focused on data registration techniques for use in video and 3D imaging. The editors have organized the contributions that make up the main body of the text in eight chapters devoted to registration for video coding, registration for motion estimation and object tracking, remote sensing image registration in the frequency domain, and a wide variety of other related subjects. Vasileios Argyriou is a faculty member of Kingston University, UK. Jesús Martínez del Rincón is a faculty member of Queen's University Belfast, UK. Barbara Villarini is a faculty member of University College London, UK. Alexis Roche is a faculty member of École Polytechnique Fédérale Lausanne, Switzerland.

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## **HYDRAULIC ENGINEERING**

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TC171 9781138027558

### **Energy Dissipation in Hydraulic Structures**

Edited by Hubert Chanson (IAHR Monograph)

CRC Press, ©2015 168 p. \$99.95

Editor Hubert Chanson presents students, academics, researchers, and professionals working in a wide variety of contexts with a collection of academic papers and scholarly articles focused on the various attributes of flow kinetic energy in hydraulic structures and the design and engineering of such structures so as to dissipate energy and prevent damage to the structure and its environment. The seven contributions that make up the main body of the text are devoted to energy dissipators in hydraulic structures, stepped spillways and cascades, hydraulic jumps and stilling basins, and a wide variety of other related subjects. Hubert Chanson is a faculty member of the University of Queensland, Australia.

TC172 9781498705523

### **Water Wave Scattering**

B. N. Mandal and Soumen De

CRC Press, ©2016 368 p. \$139.95

The authors present advanced mathematical discussion of water wave scattering, with an emphasis on mathematical and computational techniques. They address the basic equations of linearized theory for a single layer fluid, a two-layer fluid, solution of dispersion equations, and the general concept of scattering problems and the energy identity in water with a free surface; wave scattering involving thin rigid plates of different geometrical configurations, focusing on plane vertical barriers, or curved barriers, inclined barriers, horizontal barriers, and thin elastic vertical plates; scattering by a rectangular trench using the Galerkin technique; scattering by a dock using the Carleman singular integral equation, as well as reduction to Riemann-Hilbert problems; scattering problems involving discontinuities at the upper surface of water using the Wiener-Hopf technique and reduction to the Carleman singular integral equation; scattering by a long horizontal circular cylinder half immersed or completely submerged; energy identities derived from scattering problems in a single-layer and two-layer fluid; wave scattering in a two-layer fluid by a thin vertical plate and long horizontal circular cylinder; and scattering problems in a single-layer or two-layer fluid with variable bottom topography using a simplified perturbation analysis.

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## **ENVIRONMENTAL TECHNOLOGY**

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TD192 9781466686823

### **Handbook of Research on Uncovering New Methods for Ecosystem Management Through Bioremediation**

Edited by Shivom Singh and Kajal Srivastava (Advances in Environmental Engineering and Green Technologies)

Information Science Reference, ©2015 638 p. \$325.00

This volume contains 19 articles by biotechnology, environmental science, microbiology, and other scientists from Asia, the Middle East, and Turkey, who describe different sources of bioremediation agents and their use in treating pollutants in the environment. They discuss microbial bioremediation, such as microbe-associated phyto-remediation technology for the management of oil sludge, the use of microorganisms and *Trichoderma* spp., bioremediation of pesticides using bacteria and fungi, the use of microorganisms and their enzymes to degrade heavy metal contaminants, the role of microbes in the bioremediation of arsenic pollution, the use of microorganisms and their enzymes in the degradation of lignin, and soil bioremediation. They also cover bioremediation through plant microbes, including the use of short rotation woody crops in the treatment of wastewater, oil pollution, the restoration of degraded ecosystems, and contaminated soil and water as well as approaches like vermicomposting, the production of antimicrobial textiles, biosorption of nickel and cadmium from wastewater in a packed bed bioreactor, biotechnology, enzymatic bioremediation, electrostatic spraying, and nanotechnology.

TD478 9781498721691

**Multi-Stage Flash Desalination: Modeling, Simulation, and Adaptive Control (online access included)**

Abraha Woldai (Engineering Systems and Sustainability Series)

CRC Press, ©2016 322 p. \$149.95

Author Abraha Woldai presents students, academics, researchers, and professionals working in a wide variety of contexts with an examination of contemporary research into the mathematical modeling, simulation, and adaptive control of multi-stage flash desalination (MSF), plants. The author has organized the main body of his text in ten chapters devoted to operation and control of multi-stage flash desalination plants, dynamic modeling for MSF plants, data reconciliation and model validation with experimental data, and a wide variety of other related subjects. Abraha Woldai is on the editorial board of the Encyclopedia of Desalination and Water Resources and the Encyclopedia of Life Support Systems in the United Kingdom.

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**MECHANICAL ENGINEERING & MACHINERY**

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TJ23 9783038354833

**Urgent Problems of up-To-Date Mechanical Engineering; select papers**

International Conference "Urgent Problems of Up-to-Date Mechanical Engineering" (2014: Yurga, Russia) Edited by D.A. Chinakhov (Applied Mechanics and Materials; Volume 770)

Trans Tech Publications, ©2015 756 p. \$300.00 (pa)

The 133 papers discuss materials science in mechanical engineering; metal processing in mechanical engineering; designing and modeling machines and mechanisms; mechatronics, automation, and control; and industrial engineering and environmental research. Specific topics include electrochemical research on multi-layer corrosion resistant material, the influence of melting technology and out-of-furnace treatment on the composition of non-metallic impurities in rail electric steel, the mathematical modeling of the dynamics of a two-mass gear system with considerations of shaft compliances, and using information systems for socio-economic management applications in mechanical engineering enterprises.

TJ210 9783038354888

**Innovative Technologies in Mechatronics and Robotics; select papers**

International Conference on Mechatronics Technology (ICMT 2014) (18th: 2014: Taipei, Taiwan) Edited by Fang-Jung Shiou, Jeng-Ywan Jeng, and Liang-Kuang Chen (Key Engineering Materials; Volume 649)

Trans Tech Publications, ©2015 127 p. \$110.00 (pa)

Editors Shiou, Jeng, and Chen present students, academics, researchers, and professionals working in a wide variety of contexts with a collection of peer reviewed papers selected from research presented at the eighteenth International Conference on Mechatronics Technology held in October of 2014 in Taipei, Taiwan. The contributions that make up the main body of the text are devoted to the variation of entrance length effect on EHD gas pump performance, mechatronics design of intelligent robotic grippers, an intelligent and confident system for automatic surface defect quantification in 3D, and a wide variety of related subjects. Fang-Jung Shiou, Jeng-Ywan Jeng, and Liang-Kuang Chen are faculty members of National Taiwan University of Science and Technology.

TJ217 9789814663540

**Adaptive Control of Underactuated Mechanical Systems**

An-Chyau Huang, Yung-Feng Chen, and Chen-Yu Kai

World Scientific, ©2015 218 p. \$88.00

Authors Huang, Chen, and Kai present students, academics, researchers, and professionals working in a wide variety of contexts with an examination of recent results in studies of the control of underactuated mechanical systems subjected to a variety of external disturbances and internal uncertainties. The authors have organized the main body of their text in ten chapters devoted to underactuated system dynamics and coordinate transformation, controller design, cart pole systems, and a wide variety of other related subjects. The authors are all faculty members of National Taiwan University of Science and Technology.

TJ808 9789814241861

**Handbook of Energy Harvesting Power Supplies and Applications**

Edited by Peter Spies, Loreto Mateu, and Markus Pollak

Pan Stanford Publishing, ©2015 576 p. \$149.95

This 12-chapter handbook outlines the fundamentals and principles of energy harvesting, with a focus on application. Each chapter details a special core technology of energy harvesting, including different transducer principles and related materials, power management, storage devices, and system design. Scientists from Europe address the design of an energy harvesting system; input energy; piezoelectric, electromagnetic, and electrostatic transducers; thermoelectric generators; the principles of solar cells; DC-DC and AC-DC converters; radiofrequency power transmission; electrical buffer storage for energy harvesting; and applications of energy harvesting power supplies, such as in building automation, condition monitoring, structural health monitoring, consumer electronics, and transport. Distributed by CRC Press.

TJ1185 9783038354956

**Recent Development in Machining, Materials and Mechanical Technologies; select papers**

International Conference on Machining, Materials and Mechanical Technologies (2014: Taipei City, Taiwan) Edited by Jyh-Chen Chen, Usuki Hiroshi, Sheng-Wei Lee, and Tiin-Kuen Fuh (Key Engineering Materials; Volume 656-657)

Trans Tech Publications, ©2015 805 p.

\$300.00 (pa)

The proceedings cover materials research and its applications, material processing technologies, applied research in materials science, applied mechanics and mechanical technologies, and measurements and monitoring in 132 papers. Among specific topics are characterizing novel sorbents for removing mercury at elevated temperature, the effect of high-pressure coolant supply on chip-breaking and tool wear in machining stainless steel, simulation analysis and in-process measurement of the workpiece temperature distribution in large surface grinding, cylindrical and conical whirl instabilities in hydrodynamic journal bearings, and the comprehensive calibration of a structured light measurement system using a planar chessboard.

**ELECTRICAL ENGINEERING, ELECTRONICS, NUCLEAR ENGINEERING**

TK1001 9783038355984

**Electrical Power Engineering and Sustainable Development of Industry; select papers**

International Conference on Electrical Power Engineering and Applications (2014: Langkawi, Malaysia) Edited by Gimesh Nair a/I Shasidharan, Muhammad Irwanto, Muhammad Mokhzaini Azizan, and Baharuddin Ismail (Applied Mechanics and Materials; Volume 793)

Trans Tech Publications, ©2015 678 p. \$260.00 (pa)

Editors Shasidharan, Irwanto, Azizan, and Ismail present students, academics, researchers, and professionals working in a wide variety of contexts with a collection of peer-reviewed academic papers and scholarly articles selected from research presented at the International Conference on Electrical Power Engineering and Applications held in November of 2014 in Malaysia. The editors have organized the contributions that make up the main body of the text in eight chapters devoted to power systems, high voltage, and insulation engineering, power electronics, electrical machines, and systems of electrical drive, materials and technologies for production of solar cells and panels, and a wide variety of other related subjects.

TK1087 9789814463638

**Nanotechnology and Photovoltaic Devices: Light Energy Harvesting With Group IV Nanostructures**

Edited by Jan Valenta and Salvo Mirabella  
Pan Stanford Publishing, ©2015 431 p.  
\$149.95



Contributors in the physical sciences summarize the current knowledge and recent developments of group IV semiconductor nanostructures that are potentially applicable in the next generations of solar cells. They provide background to students and researchers new to the field, and point out some open questions and promising directions of future development. Among their topics are the dielectric function and spectrophotometry: from bulk to nanostructures, *ab initio* calculations of the electronic and optical properties of silicon quantum dots embedded in different matrices, using optical methods to investigate excited-state relaxation in group IV nanocrystals, electrical transport in silicon-based nanostructured superlattices, and germanium nanostructures for harvesting and detecting light. Distributed by CRC Press, A Taylor & Francis Group member.

TK2897 9781466682542

### **Innovative Materials and Systems for Energy Harvesting Applications**

Edited by Luciano Mescia, Onofrio Losito, and Francesco Prudeniano (Advances in Environmental Engineering and Green Technologies Book Series)

Engineering Science Reference, ©2015 496 p. \$235.00

Mescia, Losito and Prudeniano present a collection of academic essays and scholarly articles focused on contemporary research into new materials and systems for energy harvesting in a variety of settings. The editors have organized the fourteen contributions in four parts devoted to electromagnetic harvesters, piezoelectric systems for energy harvesting, thermal and solar systems for energy harvesting, and non-conventional systems and materials for energy harvesting.

TK5103 9781466686427

### **Game Theory Framework Applied to Wireless Communication Networks**

Edited by Chungang Yang and Jiandong Li (Advances in Wireless Technologies and Telecommunication)

Information Science Reference, ©2016 502 p. \$235.00

Computer scientists and engineers from Asia, Europe, the US, and Saudi Arabia present 16 articles on the application, mechanism design, and challenges of game theory frameworks for wireless communication network techniques and issues. They describe game theory models, including complete information-supported games of non-cooperative potential games, coopera-

tive coalition games, and games with incomplete information; heterogeneous small cell networks and interference mitigation with power control and allocation, game theory-based radio resource optimization, game theory-based coverage optimization, resource allocation for device-to-device communications, distributed dynamic resource allocation, self-organizing spectrum access with a geo-location database, and auction-based resource management; and advanced game theory for wireless techniques, including physical layer security, infrastructure sharing, and renewable energy for green communications, as well as multimedia and social interactions and cooperative video transmission by broadcasting.

TK6565 9781118487600

### **Artificial Transmission Lines for RF and Microwave Applications**

Ferran Martín (Wiley Series in Microwave and Optical Engineering)

Wiley, ©2015 520 p. \$130.00

Martín introduces alternatives to ordinary transmission lines for the design and implementation of radio-frequency and microwaves device components with increased degrees of freedom, more possibilities for reducing device size, improved performance, or the ability to achieve novel functions. Writing for readers who are already familiar with radio-frequency and microwave engineering, he covers fundamentals of planar transmission lines; artificial transmission lines based on periodic structures; metamaterial transmission lines: fundamentals, theory, circuit models, and main implementations; radio-frequency and microwave applications of metamaterial transmission lines; reconfigurable, tunable, and nonlinear artificial transmission lines; and other advanced transmission lines.

TK6570 9781614994619

### **Radio Frequency Identification System Security; proceedings**

Workshop on Radio Frequency Identification System Security (2014: Hualien, Taiwan) Edited by Nai-Wei Lo, Yingjiu Li, and Kuo-Hui Yeh (Cryptography and Information Security Series; Volume 12) IOS Press, ©2014 67 p. \$110.00 (pa)

Researchers, vendors, and government officials investigate, discuss, and propose new solutions for security and privacy issues relating to radio frequency identification (RFID) and Internet of Things technologies and applications. The five papers cover the single-chip implementation and evaluation of a passive ultra-high frequency RFID tag with hash-based mutual authentication, a new ultra-lightweight RFID authentication



protocol based on physical unclonable functions, privacy-preserving electronic invoicing in physical channels via near-field communications, an authentication scheme for ubiquitous RFID systems, and RFID multi-ownership transfer protocol in vendor-managed inventory environments.

TK7855 9789814651769

**Frontiers in Electronics; select papers**

Workshop on Frontiers in Electronics (2013: San Juan, Puerto-Rico) Edited by Sorin Cristoloveanu and Michael S. Shur (Selected Topics in Electronics and Systems; Volume 55)

World Scientific, ©2014 177 p. \$115.00

The 11 papers include discussions of developments in magneto-resistance memory: magnetic tunnel junctions with a composite free layer, graphene active plasmonics for new types of terahertz lasers, deep ultraviolet light-emitting diodes for public health applications, novel cascade diode lasers based on type-I quantum wells, vertical conduction in the new field effect transistors: p-type and n-type vertical channel thin film transistors, and reflections on the future electric power grid monitoring system.

TK7868 9781118790908

**Optimal Design of Switching Power Supply**

Zhanyou Sha, Xiaojun Wang, Yanpeng Wang, and Hongtao Ma

Wiley, ©2015 416 p. \$140.00

A specialist book for engineers and electronics technicians, this volume will be used as either a handbook for professionals working on the design, manufacture, or operation of switching power supplies, or as a textbook for graduate students. Switched-mode power supplies are efficient at converting power during transmission and can be built smaller than linear supplies; as a result there is a high demand for optimal designs in the market for power transfer technology. This book looks at design, manufacture, and debugging, including peripheral component characteristics, designing power factor correction circuits, and high-frequency transformers. Readers must be extremely comfortable with the book's abundant engineering equations and complex circuit diagrams.

TK7871 9781118921524

**Heterojunction Bipolar Transistors for Circuit Design: Microwave Modeling and Parameter Extraction**

Jianjun Gao

Wiley, ©2015 259 p. \$140.00

For newcomers to heterojunction bipolar transistors, Gao describes the basic modeling tech-

niques for semiconductor devices, introduces the basic concepts of heterojunction bipolar transistors, and provides state-of-the-art modeling and equivalent circuit parameter extraction methods for heterojunction bipolar transistors. The book could serve as a reference for practicing engineers and technicians working in radio-frequency, microwave, and solid-state devices and integrated circuit design, he says, and could also be used as a textbook in courses on microwave active devices and circuits for senior undergraduate or first-year graduate students.

TK7872 9783038354864

**Ferroic Materials: Synthesis and Applications: Special Topic Volume With Invited Peer Reviewed Papers Only**

Edited by Hardev Singh Virk (Solid State Phenomena; Volume 232)

Trans Tech Publications, ©2015 278 p. \$200.00 (pa)

This is an edited collection of 10 peer-reviewed papers having to do with studies of physical characteristics of ferromagnets, ferroelectrics and ferroelastics over a narrow temperature range. Topics covered include: the synthesis, unique properties and application of magnetic oxide nanomaterials; high permeability and saturation magnetization of certain Mn-Zn Ferrites; synthesis and properties of M-type and Y-type hexaferrites; hydrothermal synthesis, characterization and properties of superparamagnetic iron oxide nanoparticles; theory and application of spin-torque nano-oscillator; ferroelectric superlattices with polarization perpendicular to the interface surface within the context of Landau-Ginzburg Theory; properties and an application of Ni doped Co-Zn nanoferrites; flexoelectricity in nanoscale dielectrics; and ferroelectric materials for high temperature piezoelectric applications.

TK7874 9789814508599

**Design and Modeling for 3D ICs and Interposers**

Madhavan Swaminathan and Ki Jin Han (WSPC Series in Advanced Integration and Packaging; Volume 2)

World Scientific, ©2014 354 p. \$128.00

Swaminathan and Han explain the current status of three-dimensional integrated circuits at basic, modern, and expert levels. They cover system integration and modeling concepts; modeling cylindrical interconnections; the electrical modeling of through silicon vias; electrical performance and signal integrity; and power distribution, return path discontinuities, and thermal management. A controversial final chapter on alternative

methods for power distribution argues that eliminating voltage planes in the package and board can help eliminate return path discontinuities, reduce layer count, and reduce the number of decoupling capacitors required.

TK7882 9781482257373

**Interactive Data Visualization: Foundations, Techniques, and Applications, 2nd Edition**

Matthew Ward, Georges Grinstein, and Daniel Keim

CRC Press, ©2015 558 p. \$99.95

Ward, Grinstein, and Keim provide students and other readers with the theory, details, and tools to enable them to build visualizations and systems involving the visualization of data. They identify the algorithmic and software engineering issues involved, and consider the whole spectrum of data visualization including mathematical and statistical graphs, cartography for displaying geographic information, scientific display of two and three dimensions, and general information visualization techniques. Readers should be conversant with some programming language and have some understanding of algorithms.

TK7895 9781118913741

**Collaborative Internet of Things (C-IoT) for Future Smart Connected Life and Business**

Fawzi Behmann and Kwok Wu

IEEE/Wiley, ©2015 282 p. \$119.95

Behmann, a consultant in smart communications and networking, and Wu, who works in embedded software development, describe the Collaborative Internet of Things (C-IoT), which uses cloud services and the Internet of Things to impact digital life and businesses, and how it will improve the quality of people's lives and business efficiency. They outline a model of the Collaborative Internet of Things and a new way of viewing the market and simplified market segmentation using individual, industrial, and infrastructure domains and business applications. They address the application requirements and relevant technologies and standards of the model for areas like health and fitness, video surveillance, smart homes and buildings, smart energy, tracking and monitoring, and smart factories, as well as the implementation of some Collaborative Internet of Things applications and services, such as health monitoring and security. They offer a reference design kit and detail new devices and technologies like wearable/mobile and cloud technology, analytics, and social media, as well as the impact of the Collaborative Internet of Things and tips for maintaining a digital lifestyle.

TK8304 9781118225547

**Photonics Technology and Instrumentation**

Edited by David L. Andrews (Photonics: Scientific Foundations, Technology and Applications; Volume 3)

Wiley, ©2015 489 p. \$145.00

The third volume in the four-volume set explains the advanced physics and mathematics for understanding solid state lighting, high contrast optical gratings, plasmonic crystals, optical holograms, photonic data buffers, optical forces, and transformation optics for electromagnetic cloaking. The last four chapters discuss nanoplasmonic sensing for nanomaterial science, laser systems for nanofabrication in gaseous and liquid environments, free electron laser interactions, and the emerging field of integrating photonics with fluidics at the chip scale.

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**MOTOR VEHICLES, AERONAUTICS, ASTRONAUTICS**

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TL220 9780768081534

**Wireless Charging Technology and the Future of Electric Transportation**

In-Soo Suh

SAE International, ©2015 209 p. \$89.95

Suh supplies a reference book describing current global research status of applying wireless power transfer (WPT) to electric vehicle charging, and future prospects for green transportation. The Introduction discusses the basic principle of WPT and its use in transportation. Chapter 2 considers the market status of current technology and contains a feasibility study for using WPT with electric vehicles. Chapter 3 compares conductive (wired) charging with wireless charging. Chapter 4 gives an overview of online electric vehicle charging (OLEV). The OLEV system under development wirelessly powers and charges an electric vehicle through power tracks embedded in the roadway. Chapter 5 discusses challenges in the development and adoption phase of the OLEV system. Chapter 6 is about market strategies and standards. The last four chapters go into applications of WPT to consumer electronics, rail, aviation, marine, and off-road transportation.

TL1500 9780877036111

**Spaceflight Mechanics 2014; proceedings; 4 volume set (CD-ROM included)**

AAS/AIAA SPace Flight Mechanics Meeting (24th: 2014: Santa Fe, New Mexico) Edited by Roby S. Wilson, Renato Zanetti, Donald L. Mackison, and Ossama Abdelkhalik (Advances in the Astronautical Sciences; Volume 152)

Am. Astronautical Society, ©2014 3815 p.  
\$760.00

Editors Wilson, Zanetti, Mackison, and Abdelkhalik present a four volume collection of academic papers and scholarly articles focused on contemporary research in the theory and application of spaceflight mechanics. The editors have organized the contributions that make up the main body of the text in twenty-eight parts, over their four volumes, devoted to space situational awareness, rendezvous and proximity operations, astrodynamics algorithms, and a wide variety of other related subjects. Published by Univelt for the American Astronautical Society.

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## CHEMICAL TECHNOLOGY

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TP159 9781118998281

### **Advanced Catalytic Materials**

Edited by Ashutosh Tiwari and Salam Titinchi (Advanced Materials Series)

Scrivener/Wiley, ©2015 443 p. \$195.00

Targeting scientists and engineers, this book highlights topics that consider the burgeoning area of materials for catalysis and their applications. Tiwari and Titinchi aim to assemble recent advances in material syntheses and technologies in the design of novel and smart catalysts used in a wide range of applications. This comprehensive book covers current literature and is an overview of all aspects of advanced materials in catalysis and the skill required in designing and synthesizing advances materials as catalysts. Twelve chapters are divided into three parts: nanocatalysts—architecture and design; chemical transformation organic and inorganic catalytic transformations; functional catalysis: fundamentals and applications. Chapters are: environmental applications of multifunctional nanocomposite catalytic materials; chemical transformation of molecular precursor into well-defined nanostructural functional framework via soft chemical approach; graphenes in heterogeneous catalysis; gold nanoparticles—graphene composites material; hydrogen generation from chemical hydrides; ring-opening polymerization of lactide; catalytic performance of metal alkoxides; cycloaddition of Co<sub>2</sub>O and epoxides over reusable solid catalysts; catalytic metal-/bio-composites for fine chemicals derived from biomass production; homoleptic metal carbonyls in organic transformation; zeolites; optimizing zeolitic catalysis for environmental remediation.

TP245 9783038354789

### **Silicon Carbide and Related Materials 2014;**

### **select papers**

European Conference on Silicon Carbide & Related Materials (2014: Grenoble, France) Edited by Didier Chaussende and Gabriel Ferro (Materials Science Forum; Volumes 821-823)

Trans Tech Publications, ©2015 1036 p.

\$480.00

This volume collects 243 papers from the 10th European Conference on Silicon Carbide & Related Materials (ECSCRM 2014), held in Grenoble, France, in September 2014, where researchers discussed issues in the field of wide bandgap semiconductors, focusing on silicon carbide, but also III-nitrides, diamond, and related materials like graphene. The papers address silicon carbide growth, including bulk, epitaxial, and thin film growth; theory and characterization, including fundamentals and material properties, point and extended defects, and surfaces and interfaces; processing, focusing on doping, implantation, and contact, dielectric growth and characterization, and etching and machining; devices and circuits, such as diodes and field effect transistors; and related materials, including other carbide-based materials and nitrides. Contributors are materials scientists and other researchers from around the world.

TP248 9781482255836

### **Membrane Bioreactor Processes: Principles and Applications**

Seong-Hoon Yoon (Advances in Water and Wastewater Transport and Treatment)

CRC Press, ©2016 431 p. \$179.95

Membrane bioreactor process (MBR) is a hybrid process that consists of two steps: membrane separation and biological wastewater treatment. In this book, Seong-Hoon Yoon draws on his experience in both academia and industry to introduce readers to the theoretical principles of MBR and the practical applications of this process. Students, researchers and practitioners will find the information about membrane module design, biological system design, system optimization and system operation, useful and interesting. Other topics addressed include submerged membrane process, activated sludge process, membrane processes for water reclamation and more.

TP786 9783038355908

### **Processing Ceramics From Waste: A New Raw Material Source for a Global Change; select papers**

International Workshop on "Processing Materials from Waste" (2014: Baeza, Spain) Edited by Carmen Martínez García, Salvador Bueno, and Michele Dondi (Key Engineering Materials; Volume

663)

Trans Tech Publications, ©2016 168 p.  
\$140.00 (pa)

The 17 papers cover new developments from waste; incorporating waste in traditional materials; and analyzing waste, material properties, and production. Among the topics are vitreous and ceramic processing for recycling industrial wastes, bacterial induced cementation processes and mycelium panel growth from agricultural waste, waste from two-phase olive oil extraction as an additive in ceramic material, lighter structural clay ceramics manufactured with marble cutting dust and paperboard based packaging waste, energy-environmental diagnosis of the ceramic sector companies in the metropolitan area of Cucuta in Columbia, and applying translucent concrete for lighting purposes in civil infrastructures and its optical characterization.

TP910 9781118028698

### **Handbook of Fluorescent Dyes and Probes**

R.W. Sabnis

Wiley, ©2015 446 p. \$175.00

Of the hundreds of known fluorescent dyes, Sabnis mainly focuses on those that are widely used in various commercial and academic research contexts. He provides a single source for such information as CAS Registry Numbers, synthesis, various properties, safety and toxicity data, and a wide range of applications. In addition to the detailed information about over 150 specific dyes and probes, he says, the volume as a whole offers an overview of the field, pinpointing gaps in the knowledge as a guide to further research.

TP1087 9780323312226

### **High Performance Polymers, 2nd Edition**

Johannes Karl Fink (Plastics Design Library Handbook Series)

Elsevier, ©2014 420 p. \$290.00

This book contains chapters on 17 types of high-performance polymers. Content is arranged according to chemical constitution of the polymers. Each chapter follows a similar format. Opening comments introduce the polymer type, review the literature, and list reviews dealing with the topic for quick reference. Each chapter continues with coverage of monomers, polymerization, and fabrication techniques and discussion of applications. Chapters conclude with information on suppliers, commercial grades, and safety aspects. In addition to a general index, the book includes trademark, acronym, and chemical indexes. Black and white images and chemical diagrams are provided. This second edition reflects current scientific literature and contains a new

chapter on poly(benzimidazole)s.

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## **MANUFACTURES, ARTS & CRAFTS**

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TS518 9781628418071

### **Introduction to Liquid Crystals for Optical Design and Engineering**

Sergio R. Restaino and Scott W. Teare (Tutorial Texts Series; Volume TT100)

SPIE, ©2015 116 p. \$47.00 (pa)

Restaino and Teare offer the optics community a primer on liquid crystals that focuses on the optical components such as adjustable lenses and filters and adaptive optics systems that are made from the materials. Their goal is to strike a balance between providing sufficient background material to support easy understanding, and pressing forward into the technology. They cover properties of liquid crystals, polarization and birefringence in liquid crystal devices, liquid crystal displays, spatial light modulators, spatial light modulators as optimal elements, adaptive optics with liquid crystals, and looking ahead at liquid crystal devices.

TT317 9783038354970

### **Electrophoretic Deposition: Fundamentals and Applications V; select papers**

International Conference on Electrophoretic Deposition: Fundamentals and Applications (5th: 2014: Hernstein, Austria) Edited by A.R. Boccacini, J.H. Dickerson, B. Ferrari, O. Van der Biest, and T. Uchikoshi (Key Engineering Materials; Volume 654)

Trans Tech Publications, ©2015 290 p.  
\$140.00 (pa)

Part of the Key Engineering Materials series, this book contains selected peer reviewed papers from the 5th International Conference on Electrophoretic Deposition: Fundamentals and Applications held on October 5-10, 2014 in Hernstein Austria. The conference was designed to bring together researchers and engineers from around the world to explore the versatility of the EPD technique. The papers address both fundamental mechanisms and applications of this material processing method. Specific topics addressed include functional films and deposits, EPD in ceramic processing, and nano-structured materials and films.

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## **MILITARY & NAVAL SCIENCE**

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U800 9781482238297

### **Armour: Materials, Theory, and Design**



Paul J. Hazell

CRC Press, ©2016 379 p. \$139.95

This volume describes the materials, theory, and design of modern armor systems in vehicles, ships, personnel, and fortifications. It explains the science and technology used to provide protection against blasts and ballistic attacks: the theory of material behavior and typical threats; materials technologies used in protection, including metallic armor, ceramic armor, woven fabrics and composite laminates, and reactive armor systems; effects on the body; and blast and ballistic testing techniques.

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## **PUBLISHING, LIBRARY SCIENCE, BIBLIOGRAPHY**

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Z675 9780838913673

### **Becoming an Embedded Librarian: Making Connections in the Classroom**

Michelle Reale

ala editions, ©2016 104 p. \$54.00 (pa)

Author Michelle Reale presents students, academics, and library professionals working in a wide variety of contexts, with an examination of embedded librarianship, its contemporary practice, and its challenges. The author has organized the main body of her text in twelve chapters devoted to the definition of embedded librarianship, the importance of relationship building, clarifying one's role in the embedded classroom, establishing a teaching style in the classroom, and a wide variety of other related subjects. The author is a faculty member of Arcadia University, Pennsylvania.

Z689 9781610697132

### **The Complete Guide to Acquisitions Management, 2nd Edition**

Frances C. Wilkinson, Linda K. Lewis, and Rebecca L. Lubas (Library and Information Science Text Series)

Libraries Unlimited, ©2015 208 p. \$60.00 (pa)

This guide to library acquisitions management covers the purpose and organization of acquisitions departments; publishers and the publishing industry; vendor services and outsourcing; acquisitions systems; acquiring monographs, used and antiquarian materials, and continuing and electronic resources; gift and exchange programs; requests for proposals from vendors; deciding which books to preserve; ethics; and selection, discovery, and delivery. This edition has been updated to reflect the changes in acquisitions, publishing, and libraries that have occurred due to the internet. It includes updates on the

acquisitions processes, new technologies, and additional resources.

Z692 9781557537218

### **Self-Publishing and Collection Development: Opportunities and Challenges for Libraries**

Edited by Robert P. Holley (Charleston Insights in Library, Archival, and Information Sciences)

Purdue University Press, ©2015 185 p.

\$29.95 (pa)

More than half of all books currently published are self-published. This fact presents a dilemma for libraries and other information managers, as in the past self-publication was a sign that the product was only of vanity interest. This book deals with the challenges and opportunities of the new landscape, from how librarians sort the vast number of self-published books to the fact that Amazon and not the library system is now the database of record for self-published and independent books. The editor argues that for vendors like Amazon not to make libraries obsolete, libraries have to engage a vision bolder than that of low-cost Internet commercial vendors. In this book, that vision is libraries as partners and facilitators of self-publication. The editor argues that self-published books meet the information and entertainment needs of the public, the reason libraries exist. Contributors look at various ways libraries and self-publication or self-published or independently published books can work as partners. The overall argument of the book is that books can be seen as raw data, and quality will emerge on a secondary level if that raw data is available to the public. The book is intended for library professionals.

Z693 9780838913697

### **Essential Classification, 2nd Edition**

Vanda Broughton

Neal-Schuman, ©2015 421 p. \$95.00 (pa)

This guide uses exercises and activities to help librarians classify documents in subject cataloging. It explains the principles of classification, methods used in classification schemes, types of schemes, order, content analysis, controlled indexing languages, word-based approaches, and various schemes --Library of Congress, Library of Congress Subject Headings, Dewey Decimal Classification, and Universal Decimal Classification --updated for this edition. It also addresses faceted classification and managing classification, and it has a new chapter on working with informal classification for digital material.



Z1003 9781631490675

**The World Between Two Covers: Reading the Globe**

Ann Morgan

Liveright Publishing, ©2015 326 p. \$24.95

Morgan presents the story of how, for a year of her life, she stretched the boundaries of her thinking by reading the globe --one book for each country --(196) plus Kurdistan --in a quest to undo her literary xenophobia by reshaping her world view over 50,000 pages produced by foreign authors. She was aided by the internet, which provided resources and a means of contacting experts, authors, and enthusiasts, who helped her to read more widely than she could ever have done on her own, both published and unpublished, in a year.

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## **2015 Engineering Division Officers and Board**

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#### **Past Chair**

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